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PhotoPlus THE CANON MAGAZINE

Issue 106 • Nov 2015

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The world's best Canon photographers teach you how to shoot every subject

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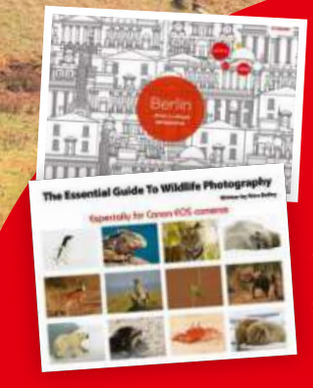
Fantastical techniques for magical multiplicity portraits

EXPERT TUITION

TAKE WINNING SPORTS SHOTS

The Times' chief sports shooter tackles rugby under floodlights



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AMAZING AUTUMN

Capture colourful landscapes like this by Julian Elliott, and much more, as the world's best Canon pros reveal their top tips on **Page 30**

Peter Travers
Editor

Welcome...

As a self-confessed rugby nut, I was incredibly excited to be part of the Apprentice photoshoot this month, as we were at a Rugby World Cup warm-up match at Esher RFC's ground. Better still, our guide and Canon pro for the night was Marc Aspland, chief *Times* sports photographer and Canon Ambassador. It was fascinating to watch a master like Marc at work, teaching our Apprentice how to capture the non-stop action under floodlights, and I managed to learn a few tricks for shooting in such low-light – namely keep your shutter speed and ISO working hard! See page 8 for great tips and Hot Shots.

Also inside, the world's best Canon pros share their top techniques for shooting every photographic genre, from landscapes and wildlife, to sports, portraits and studio shots – see page 30. Iconic US photographer Howard Schatz talks to us about his incredible portfolio and mind-blowing images he's shot during his distinguished career. See page 70.

In Canon Skills we have new projects and videos, including a fantastical multiplicity portrait of Hollie playing each character in *Alice in Wonderland*, gritty flash portraits, and how to use a sheet of perspex for brilliant reflections of cityscapes at night. Plus new Photoshop Elements, CC and Lightroom tutorials, starting on page 47. Canon School is all about white balance, and we test eight dedicated flashguns to brighten up your life.

This issue you can also enter our fantastic competition to win a home studio setup worth £2,000, see page 118. We're also giving you a free *Essential Guide to Wildlife Photography* ebook worth £6.95, and Canon Photo Guide on Berlin, more details over the page.

Peter

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- Our Video Disc has **THE VERY BEST DSLR TECHNIQUE & PHOTOSHOP VIDEO GUIDES** which can also be viewed via our digital editions.
- We're proud to use **THE WORLD'S TOP CANON PHOTOGRAPHERS** and experts. Meet them on page 6.

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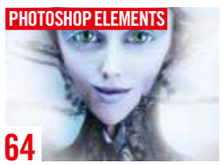

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READ THE TUTORIALS… THEN WATCH OUR EXPERT VIDEOS

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Meet the team...

PhotoPlus THE CANON MAGAZINE

Who we are, what we do, and our favourite bits of issue 106...

Peter Travers
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Rugby-nut Peter went behind the scenes on our Apprentice shoot, capturing the action of the Canada vs Georgia Rugby World Cup warm-up. **PAGE 8**

Adam Waring
Operations editor • 7D
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Autumn is Adam's favourite season so he was very happy to see scenic shots brimming with colour in this issue's Learn From The Pros tips guide on **PAGE 30**

Hollie Latham
Technique editor • 60D
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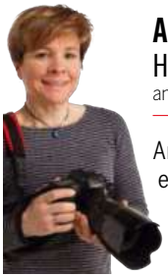
Drama queen Hollie was ideal to dress up as Alice in Wonderland's Queen of Hearts, Mad Hatter, Cheshire Cat, White Rabbit, Dormouse... and Alice. **PAGE 48**

Martin Parfitt
Art editor • 600D
martin.parfitt@futurenet.com

Martin is a devoted fan of water sports, so was delighted that this issue's Inspirations gallery was full of action-packed shots of people splashing around. **PAGE 20**



Angela Nicholson
Head of testing • 5D Mk III
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Ange is pretty excited about the enormous Epson SC-P800 A2 Wi-Fi enabled printer – but isn't sure she'll have space for it in her house. **PAGE 110**

Tom Welsh
Technique writer • 5D Mk II
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Tom enjoyed getting creative with cityscape reflections shooting his skyline project of At-Bristol late at night, armed only with a camera and a sheet of perspex. **PAGE 52**

This issue's contributors...

Marc Aspland
Spending a night with hookers is part of the job for sports snapper Marc... when shooting rugby! **PAGE 8**

Eberhard Schuy
Eberhard is one of the top international photographers to share their pro Canon tips in our big guide on **PAGE 30**

David Noton
High on the hill there's a man peering down with his long telephoto zoom... David's in the Alps this issue! **PAGE 44**

Howard Schatz
Howard has photographed everyone from tramps to top Hollywood superstars. Read his story... **PAGE 70**

Adam Gasson
Live music photographer Adam tells us about the kit he uses to shoot popular beat combos. **PAGE 86**

Andrew James
This issue, Andrew tackles the thorny subjects of colour temperature and white balance. **PAGE 90**

Brian Worley
Got a Canon question you're too embarrassed to ask? Well don't be shy, give Brian a try. **PAGE 101**

Matthew Richards
Light up your life with a new flashgun – Matt puts eight affordable Speedlite options to the test... **PAGE 120**

Our contributors Ben Andrews, Marc Aspland, Joe Branston, Clive Booth, Rob Bowen, George Cairns, David Clark, Giancarlo Colombo, Lucie Debelkova, Julian Elliott, Steve Fairclough, Adam Gasson, Pete Gray, Ben Hall, Andrew James, Eddie Keogh, Jörg Kyas, Simon Lees, Andy McGregor, Andrew McLaughlin, Thorsten Milse, David Noton, Victoria Palframan, James Paterson, Joel Santos, Matthew Richards, Howard Schatz, Gary Schmid, Eberhard Schuy, Brian Worley

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APPRENTICE

NAME: RICHARD MEARS

CAMERA: CANON EOS 7D MARK II

RICHARD is a 49-year-old sales director based in Fleet, Hampshire. He's had a passion for sports and photography from an early age, and for the past ten years has been concentrating on using his Canon DSLR to capture local sporting events. As a keen rugby fan he asked for our help to improve his camera techniques for shooting flood-lit matches at night. We were only too happy to oblige – at an international match!

Words Peter Travers **Location shots** Simon Lees

FLOODLIGHTS, CAMERA, ACTION

One of the world's best sports photographers teaches our Apprentice how to capture great live-action shots at the Canada vs Georgia Rugby World Cup warm-up match

CANON PRO

NAME: MARC ASPLAND

CAMERA: CANON EOS-1D X

MARC, 50, is *The Times* chief sports photographer. He's covered countless events, including rugby and football World Cups and Olympic Games, and has a unique eye for capturing imaginative and iconic images. A Canon Ambassador and the current Sports Photographer of the Year, he was made an Honorary Fellow of Royal Photographic Society in 2014 and is author of *The Art of Sports Photography*. See www.marcaspland.com for more.

HOT SHOT #1

RICHARD'S COMMENT

"I shot this passage of play near the start of the match, in the last light of the evening. I like the way the Canadian player has been tackled, and the other players are working hard to get to him and the ball. My shutter speed of 1/1600 sec has frozen them all in action. Unfortunately, unlike major rugby grounds such as Twickenham, where surrounding the pitch are massive crowds right up to the heavens, at smaller venues you have things like burger vans and ambulances in background!"

PRO TIP

WARM-UP PREMATCH SHOTS

"SHOOT the players warming up; it enables you to get your eye in before the match and also pick out interesting-looking or key players," says Marc. "I also look for unique shots, such as the players silhouetted against the moody evening sky. As the Canada vs Georgia game was an international warm-up we could shoot the teams lining up for their national anthems, which always provides great photo ops and emotional facial expressions."

Lens	Canon EF 400mm f/2.8L IS II USM
Exposure	1/1600 sec, f/2.8, ISO4000

TECHNIQUE ASSESSMENT

The Times chief sports photographer Marc helps Richard get set to shoot the school of hard knocks

APERTURE AND SHUTTER SPEED

ALTHOUGH many people use Shutter Priority (Tv) mode for sports, Marc uses Manual to control both aperture and shutter speed: "I always shoot at f/2.8 to blur the stands and crowds behind the action, and for the fastest shutter speed possible – ideally around 1/1000 sec. Then I simply adjust the ISO for a good exposure of the players. Your camera can often get fooled when exposing for brightly coloured players under floodlights against dark backgrounds, and in Tv mode you could end up with drastically under- or overexposed shots – Manual ensures that your exposures are consistent."

SHOOT JPEG FOR FAST IMAGE PROCESSING

WE ARE always reminding you of the benefits of shooting Raw images in *PhotoPlus*. However, for live action-sports photography you want your Canon DSLR to perform as quickly as possible, which means shooting JPEGs, as Marc explains: "I shoot JPEGs as my 1D X cameras are faster when firing bursts, they are written to the memory card more quickly, and it's faster for my image technicians to process key shots mid-match when they need to upload them to *The Times* website. I'm also confident my exposures will be good, so I don't need Raws to allow me to rescue or enhance images."

EXPERT INSIGHT

SHUTTER SPEEDS FOR SPORTS

SHOOTING sports in low light, such as under the modest floodlights at a small-town rugby club like Esher RFC where we were, can make it a challenge to get sharp shots of the action. "You need to ensure you obtain a shutter speed of around 1/1000 sec, and certainly never below 1/800 sec, or you'll end up with blurry players – which will be instantly rejected by the paper. With the right shutter speed you can: freeze the fast-moving players in action; combat camera shake when using long lenses; and work with your wide aperture for a good exposure: go too slow and your shots will be too bright *and* too blurry. A bad combination!"

1/40 SEC

1/200 SEC

1/320 SEC

1/1000 SEC

HOT SHOT #2

Lens	Canon EF 16-35mm f/2.8L IS II USM
Exposure	1/200 sec, f/4, ISO1600

EXPERT INSIGHT

KEEP THE NOISE DOWN!

YOU REALLY need to push your Canon DSLR to the limits of its high-ISO performance to obtain the shutter speeds necessary for live sports in low light. Your top native ISO is the maximum we'd advise shooting at to avoid overly noisy images (ISO16,000 on Richard's 7D Mk II), but even at that setting noise can creep in, especially when shooting at night with dark skies and high-contrast areas. But remember: it's always better to have a noisy sharp image, than a noise-free, blurry shot. Also be aware that sharpening high-ISO images can increase noise further, so only sharpen shots when they really need it.

TOP GEAR #2

Fast wide-angle zoom

"SPORTS photography isn't all about shooting with a super-telephoto prime or zoom lens and shooting from a distance. I also like to immerse myself in the action by getting right on the sidelines with my 16-35mm lens and capturing shots that tell the story of a match, including more of the stands and crowd, the skies and surroundings to add context," says Marc.

RICHARD'S COMMENT

"I was surprised how often Marc switched between his long and wide-angle lenses. For this shot, we got right on the sideline and got down low for a wider shot the scrum, using the amazing sky as our background – you wouldn't get as much sky in a shot at Twickenham with its high stands! It was a lot darker than it looks – it's amazing how my 7D Mk II's sensor resolves more colour and detail in the sky than can be seen with the naked eye. My shutter speed/ISO should've been higher as there's a little movement in the Canadian scrum half; I had dropped the shutter speed in order to keep the sky dark, but I should've dropped the ISO instead to keep the speed up. Still, it's a strong shot."

PRO TIP

HIGH-SPEED CONTINUOUS DRIVE MODE

EVERY Canon EOS DSLR is equipped with a High-speed Continuous drive mode. Marc's top-end Canon pro EOS-1D X cameras will maintain 14fps for 180 JPEGs. Incredibly, Richard's enthusiast-level 7D Mk II will fire 10fps for an infinite amount of JPEGs! "I use my high-burst drive mode, however I don't keep my finger on the trigger continuously," says Marc. "Instead I fire short bursts of four to five images to capture a sequence of play, like a back making a line-break, or a tackle."

RICHARD'S COMMENT

"My affordable Sigma 150-600mm f/5-6.3 DG OS HSM S super telephoto zoom (tested on page 116) performed admirably in the late-evening light, but when night fell and we were shooting under the floodlights its f/6.3 aperture and AF couldn't keep up with the action. I borrowed the *PhotoPlus* team's Canon EF 100-400mm f/4-5.6 lens, but even at ISO16,000 the f/5.6 produced a measly shutter speed of 1/200 sec. As Marc had said, you need 1/800 sec or more to freeze the fast-paced rugby in action! That said, I love the composition and timing of this shot, and the players' blurred feet emphasize the speed of the sport."

TOP GEAR #1

Fast memory cards

"I DON'T have time for slow memory cards in case my camera's buffer stalls when processing the latest burst of shots, and I miss an important try or red card in a game. I prefer to use more robust Compact Flash cards to SD cards and favour the faster Lexar 800x (120MB/s) UDMA cards. I carry lots of 8, 16 and 32GB cards, you can never have too many during an international match," says Marc.

Lens	Canon EF 100-400mm f/4.5-5.6L IS II USM
Exposure	1/200 sec, f/5.6, ISO16,000

TOP 10 TIPS FOR WINNING RUGBY SHOTS

1 The six 'P's
Proper prior planning prevents poor performance! So arrive early to find the best spots to shoot from and make sure your kit is set up, working and ready to shoot, well before kickoff.

2 Prematch warm-ups
The players warming up before the game will provide great opportunities for some unique, close-up shots; experiment with more adventurous techniques, like silhouettes.

3 JPEG not Raw
You want your Canon DSLR to perform at its fastest so select the JPEG image quality setting. Also use the fastest memory cards you can afford.

4 Shoot from the corners
The majority of tries are scored near the corner flags, so position yourself behind the dead-ball area and focus on the 15-yard channel along the sideline and the try line.

5 Do your homework
Which team is likely to win, or at least score more tries or penalty kicks? If you're behind the try line of the best attacking team, you're more likely to capture those dramatic try-scoring shots as the players run towards you.

6 Burst mode
All Canon DSLRs have a High-speed Continuous drive mode, so use it – Richard's 7D Mk II fires at 10fps. Remember to press the shutter button before, during and after a passage of play to give yourself options of the best action shot.

7 Manual mode
Use Manual mode to fix your aperture and shutter speed. Set your lens's widest aperture (such as f/2.8) to achieve the fastest shutter speed to freeze the action – ideally 1/1000 sec.

8 ISO control
Don't be scared to push the boundaries of your ISO. We were shooting at around ISO12,800 on an f/2.8 lens to obtain the magic 1/1000 sec shutter speed under Esher RFC's floodlights.

9 AF setup
Set your camera's central AF point as it's most responsive. If you rely on Auto AF point selection your camera may well focus on players closest to you, not the player you want to focus on.

10 Look for original shots
Take a step back, look at the bigger picture, and try and capture a unique sporting moment, rather than the obvious winning try scored.

HOT SHOT #4

Lens	Canon EF 70-200mm f/2.8L IS II USM
Exposure	1/800 sec, f/2.8, ISO12,800

RICHARD'S COMMENT

"Throughout the match Marc explained how to follow rugby's set pieces and focus on pivotal players, like the fly half and scrum half, who's putting up a box kick here. The importance of getting your timing right can be the difference between a hit or miss. Too early and the ball gets lost in play, whereas a little later the ball's in the air, as is the Canada back-rower attempting to charge down the ball."

TOP GEAR #3

Fast telephoto zoom!

"WITH rugby you're often including more players in your frame compared to football – so you won't need a massive super-telephoto lens for shooting your local team. My Canon EF 70-200mm f/2.8L IS II USM is perfect for frame-filling shots, with quick and accurate AF, even under floodlights."

PRO TIP

FOCUSING SETUP

"RICHARD kept changing his camera's AF points – as he has 65 of them to play with – but I explained that the central AF point is more responsive and you can always crop shots later," says Marc. "I also use AI Servo to follow-focus players, and the AF-On button to activate focusing."

HOT SHOT #5

Lens	Canon EF 70-200mm f/2.8L IS II USM
Exposure	1/1000 sec, f/2.8, ISO12,800

RICHARD'S COMMENT

"Marc emphasized that rugby is a game of defending as well as attacking, and sometimes a winning shot is one of a player being tackled, or in this case, wrapped up. What makes this shot is the look of anguish on the tackled player's face, as well as the hopeful look on the Canadian player who is about to try and receive a pop-pass through the gap. I shot this on Marc's 70-200mm f/2.8 L-series zoom, which was super-fast to focus!"

HOW MARC SHOT ICONIC INTERNATIONAL MATCHES

Marc Aspland reveals four of his most captivating rugby shots

ENG vs AUS, RWC2003

A private moment, Jonny and Johnno, Rugby World Cup Final lap of honour in Sydney, 2003.

ENG vs AUS, RWC2003

That drop goal by Jonny Wilkinson that won the Rugby World Cup for England in 2003.

NZ vs ARGENTINA, RWC2011

The All Blacks lock horns with the Pumas during the RWC semi-final in Auckland, shot from high in the cheap seats using a 400mm lens.

BRITISH LIONS vs AUS, 2013

Australian Wallabies and The British & Irish Lions show blood, sweat and tears during the second Lions test in Melbourne.

EXPERT INSIGHT

EDIT AS YOU GO

WHEN you're shooting at 10 or 14fps for an 80-minute rugby match, you'll end up with thousands of shots, which can mean hours of image editing. To save time, we suggest this four-point plan of attack:

ERASE DUFFS PITCHSIDE

During obvious lulls in the match and during half-time, flick through your images on-camera and delete obvious duff images. But always be ready to shoot at an instant if play suddenly continues!

DELETE RUTHLESSLY

With images downloaded on your computer, ruthlessly check again for flawed shots, and delete as necessary. Carefully select around 50 of your best shots, zooming in to check for any motion blur or camera shake that could spoil any shots.

CROP SHOTS

Don't be afraid to crop severely; images from modern Canon DSLRs are massive nowadays, and you can easily crop 50% off a 20-megapixel shot on a 7D Mk II and be left with an image that's high-resolution enough for a decent 10x8in – or even A4 – print.

BATCH EDIT

Open up your final shortlisted 20-30 images in your preferred image-editing software for some quick batch processing (as long as they're all taken under the same lighting conditions, with good, even exposures). Whether using Lightroom, Photoshop or Photo Mechanic (the pro's choice) you can apply exposure, colour temperature, contrast and saturation corrections to all your images for a final collection of shots that work well as a whole.

HOT SHOT #6

Lens	Canon EF 400mm f/2.8L IS II USM
Exposure	1/800 sec, f/2.8, ISO16,000

RICHARD'S COMMENT

"We'd been banking on Canada being the more attacking side, but had to wait late into the second half before they made some exciting runs towards us. This shot shows a good degree of separation between each player and has a balanced composition, with the supporting Canadian players on the left. The wide f/2.8 aperture and long 400mm telephoto lens have combined to capture a shallow depth of field to blur the grass in front of, and the crowds behind, the players."

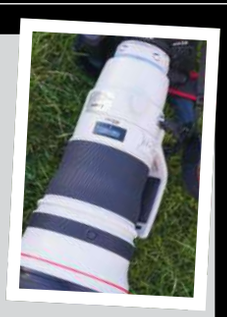
PRO TIP

THREE DSLRs WITH LENSES

MARC carries three Canon EOS-1D X cameras, with 400mm and 70-200mm lenses ready to shoot distant and closer action, plus a 16-35mm lens for wider shots: "I don't have time to switch between lenses during high-intensity matches, so I have all focal lengths covered with my three DSLRs."

TOP GEAR #4

Fast super-telephoto prime



EVEN even when shooting at ISO16,000 on his 7D Mk II, Richard was really struggling to obtain a fast enough shutter speed with his Sigma 150-600mm and our Canon EF 100-400mm lens, which only enabled him to shoot at f/6.3 and f/5.6 respectively. Fortunately, Marc had a Canon EF 400mm f/2.8L IS II USM prime pro lens, which made such a difference "With its fast f/2.8 aperture, it means both a faster AF and faster shutter speed, all equaling better action shots," says Marc. "I always use it with my Manfrotto carbon monopod to take the weight and for sharper shots."

RICHARD'S COMMENT

"The Canadian forwards were attacking fiercely at this point in the game, and again I've used Marc's EF 400mm f/2.8 to great success. The 400mm has an effective focal length of 640mm with my 1.6x crop-sensor 7D Mk II – which meant I could get close-up shots from the other side of the pitch. Attached to his monopod, it was a joy to use. I particularly like how the out-of-focus Georgian No.22 has added some foreground depth to the shot."

HOT SHOT #7

Lens	Canon EF 400mm f/2.8L IS II USM
Exposure	1/800 sec, f/2.8, ISO16,000

HOT SHOT #8

Lens	Canon EF 50mm f/1.4 USM
Exposure	1/500 sec, f/2.8, ISO6400

RICHARD'S COMMENT

As Marc felt we'd got lots of close-up and long lens shots, he encouraged me to change lenses and experiment. Here I used my Canon EF 50mm f/1.4 USM, but at f/2.8 as I know it's sharper and would capture enough depth to ensure all the players in this line-out are in focus. Shooting a burst at 1/500 sec, I was able to pick the shot where the ball and jumping player are in the best position.

PRO TIP

ARTISTIC SPORTS SHOTS

MARC is well known for his original and evocative sports shots that show a different side to the game than more traditional newspaper sports images. Throughout the game he used his 400mm super-telephoto lens to pick out interesting shapes and textures, such as hands and arms binding in a scrum, and isolated players.

RICHARD'S COMMENT

By now I was able to predict which second-row players would jump in the line-out, so I prefocused on them, composed the shot, then kept both eyes open, firing continuously as the hooker threw the ball. I composed vertically to suit the shapes of the players jumping. I also didn't need to crop this shot very much at all, as by the 70th minute of the match I was composing and focusing shots much more confidently.

MARC'S VERDICT

Richard was a great Apprentice, and really applied himself throughout the game, listening to my advice and reacting quickly. He's managed to put a handful of key techniques together for this winning Shot of the Day. It sounds obvious, but switching to a vertical composition really helps this shot to fill the frame, with the tall shape of the two players being hoisted in the line-out. It's also a rare line-out where Georgia were competing in the air, which make this shot more captivating. His 1/800 sec shutter speed and focusing have worked together for a sharp shot, plus he's got in position for a clean background, with the flood-lit players standing out brilliantly against the pitch-black night sky. A hint of the posts in the background adds context.

NEXT MONTH **STUDIO PORTRAITS**

SHOT OF THE DAY!

Lens	Canon EF 400mm f/2.8L IS II USM
Exposure	1/800 sec, f/2.8, ISO16,000

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INSPIRATIONS

STUNNING IMAGERY FROM THE WORLD OF CANON PHOTOGRAPHY

Photocrowd

All the images in this gallery were entrants to the *PhotoPlus* 'Water Sports' competition hosted on Photocrowd – a website where a public vote on the best-liked images is pitted against expert opinion. To enter our current contest, and vote on your favourite photos, simply visit **www.photocrowd.com**

01 SWIM BY MELINDA NAGY
This image was taken in Turda, Romania, a small town known for salt mines during the Roman era. Large pits were dug to remove salt, which filled with water, so the town is now surrounded by several salty lakes. The deposits from the salt mud are used for therapeutic reasons, so many people bathe in the lakes, however this man was swimming, which stood out among others floating by.

Lens	Canon EF 200mm f/2.8L II USM
Exposure	1/800 sec, f/5, ISO400

02

02 SHIPPING FORECAST, HURRICANE IMMINENT BY NIALL FERGUSON
A group of Camberley Camera Club members hired a powerboat to cover the Round the Island Race, Isle of Wight. This is the Elan 450 design Squire Patton Boggs with Dame Helena Lucas (2012 Paralympic sailing gold medal winner) at the helm.

Lens	Canon EF 70-200mm f/2.8L IS II USM
Exposure	1/2000 sec, f/2.8, ISO100

03 WAITING FOR WAVES BY ELLE WALLACE
I took an early morning stroll down to the beach with my camera and I noticed the sea was full of surfers. The light was casting a nice colour on the sand and reflecting a surfer standing at the water's edge. He looked thoughtful as he was trying to find a space among everyone.

Lens	Canon EF 70-200mm f/2.8L IS II USM
Exposure	1/250 sec, f/11, ISO400

04 ON A WAVE BY YURY BARSUKOV
I was trying to capture a beautiful sunset on Boracay island in the Philippines one evening, when I saw a lone surfer looking at the sea and waiting in anticipation of a small wave. So I focused on him and waited too – we both had one attempt and neither of us missed it!

Lens	Canon EF 70-200mm f/2.8L USM
Exposure	1/250 sec, f/5, ISO800

03

04

05

06

05 WAKE-BOARDING SILHOUETTE BY VINCENT NURSALIM
This was taken at Sunter Lake, north Jakarta, Indonesia. I was photographing a wake-boarder in exchange for some free shots. He invited me aboard the speedboat and, as I circled around the lake, I fired off lots of shots. Shooting against the low sun resulted in this silhouette.

Lens	Canon EF 70-200mm f/2.8L IS II USM
Exposure	1/2000 sec, f/3.2, ISO100

06 LOOK AT ME BY ALAN GOLDEN
I took this shot of my son, Jamie, in the pool. I was aiming for a low-angle action shot and set a fast shutter speed to freeze the water and a wide aperture of f/2 to blur the background. All that was needed was a great splash to bring all the elements together to capture this shot.

Lens	Sigma 50mm f/1.4 DG HSM A
Exposure	1/4000 sec, f/2, ISO100

07 RAFTING BY JASMIN LAPPALAINEN
This photo was taken at Europe's largest free-flowing rapids in Finland. It was spotting with rain and a little on the cool side for July. I added a tilt-shift effect in Photoshop to focus the eye on the rafters.

Lens	Tamron SP AF 70-300mm f/4-5.6 Di VC USD
Exposure	1/100 sec, f/8, ISO160

07

INSPIRATIONS

08

08 BREATH BY ERIKA EROS
I took this photo on a warm summer's afternoon at the outdoor Olympic pool in Hajdúszoboszló, Hungary. I was sitting on the poolside after a refreshing swim when I noticed this pro in the water. I grabbed my camera and took a few shots, trying to be discreet. The light was diffused by the trees around us, and I managed to capture both the clear movements of the swimmer and the playful water droplets around him.

Lens	Canon EF 70-200mm f/4L USM
Exposure	1/800 sec, f/4, ISO200

09 RAPID DETERMINATION BY DAVE STROUD
This image was taken during the National trials for the Canoe Slalom European Championships, held at the Lee Valley White Water Centre, in 2014. It was a very enjoyable day, with sportsmen and women competing both in canoes and kayaks. I was often struck by the expressions on many of the competitors' faces. I tried to capture this in my image, hence the title.

Lens	Sigma 18-250mm f/3.5-6.3 DC Macro OS HSM
Exposure	1/250 sec, f/10, ISO100

10 SURFER BY ALAN FITZPATRICK
This shot was taken late summer 2010 at Manorbier Bay, Pembrokeshire. It was taken from the rocks at the base of the cliffs early one evening as the tide was coming in, covering me with saltwater spray. I took around a hundred shots and this was one of the better ones.

Lens	Canon EF 300mm f/4L USM + Extender EF 1.4x
Exposure	1/640 sec, f/7.1, ISO400

09

10

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◆ LANDSCAPES ◆ WILDLIFE ◆ PORTRAITS ◆ SPORTS ◆ STUDIO

LEARN FROM THE PROS

The world's leading professional Canon photographers pass on their top tips and techniques for capturing stunning images of every genre

What better way to sharpen your skills than learning from the world's very best EOS photographers? We asked top Canon shooters to share their expert tips and inspirational images.

You'll discover how to freeze sports action, how to shoot superb landscapes, how to capture the natural world with your camera, how to get striking portraits, and the best ways to shoot macro and studio images. All of this essential advice comes from professional photographers who are producing beautiful images with their Canon equipment day in, day out.

Over the next 12 pages you'll discover dozens of invaluable tips for shooting with your Canon equipment from many of the best exponents of the art of photography.

BEN HALL
benhallphoto.com

THORSTEN MILSE
wildlifephotography.de

EDDIE KEOGH
eddiekeogh.com

GIANCARLO COLOMBO
giancarlocolombo.com

JULIAN ELLIOTT
ethereal-light.com

JOEL SANTOS
joelsantos.net

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WILDLIFE

BEN HALL

Ben Hall is an award-winning wildlife photographer from the UK. He reveals his tips:

Positioning is everything

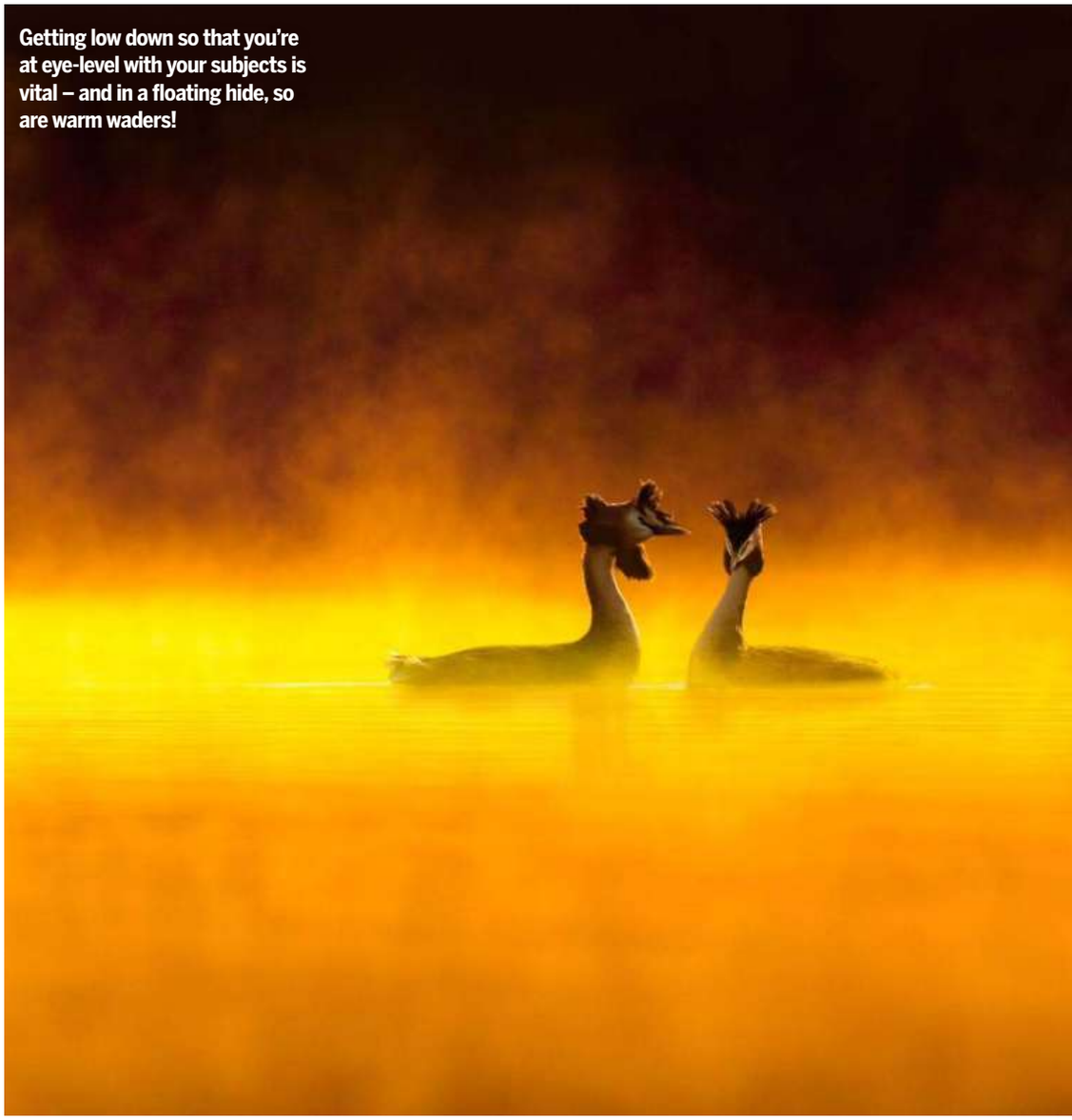
When photographing animals in the wild, it's all about getting into the right position. I took this image (right) from a floating hide just as the first rays of sun hit the water, which enabled me to get into the best vantage point without disturbing the waterfowl. I wanted the mist hanging over the water to glow so I shot into the light and set my white balance to Cloudy to make the most of the warm hues. Luckily the birds drifted into the light and I was able to capture them enveloped in the early-morning mist.

Shoot in silhouette

I spend countless hours out in the field during the red deer rut in October. I positioned myself on a hill looking up towards a ridge where I had often seen deer (below). The sun had sunk behind the horizon when I took the shot, but the dark sky was still lit as the stags began to fight. I metered off a bright area of the sky to ensure that I held detail in the highlights, and the deer then naturally fell into silhouette, accentuating their form against the stormy sky.

Timing is critical

To stand out well, the migrating birds (far right) needed to be flying against a bright area of the sky. By panning as they flew and using the high-speed drive mode on the 1D X, I was able to fire a burst of 12 frames per second. I started firing just as the flock approached the ray of light. I used a zoom lens so I could pull back and show the birds against the dramatic sky. A mid-range aperture of f/9 also helped to ensure that all birds were in focus.



Getting low down so that you're at eye-level with your subjects is vital – and in a floating hide, so are warm waders!

Rutting deer offer wildlife photographers wonderful opportunities – but consider shooting them in silhouette

Get your timing right for evocative nature shots

Early morning and late evening are best for wildlife photography

THORSTEN MILSE

Thorsten Milse, from Germany, photographs wildlife around the world. He advises:

Work in the right light

The best conditions are usually an hour before sunrise and an hour after sunset. The EOS-1D X allows me to work at up to ISO6400 for a decent shutter speed and still get quality images.

Use fast, high-capacity cards

I prefer to use fast, reliable 64GB memory cards from Toshiba in both of my EOS-1D X's card slots. I have the record function set to 'Auto switch card' so when one card is full it switches to the other, so I never miss a shot.

Make your settings easy to change

Sometimes you need to change settings quickly. The M-Fn button is perfect for changing the 'Select AF area' mode without having to delve through menus.

Choose a flexible lens

I use the EF 200-400mm f/4L IS USM Extender 1.4x. This lens allows for a quick transition to different telephoto focal lengths, without changing position. The built-in extender gives perfect image quality and the lens's AF system works really quickly.

A flexible telephoto zoom enables you to get close to subjects

EDDIE KEOGH

Freelance photographer Eddie Keogh has shot major sports events (most recently for Reuters) since 1984, when he covered the Olympic Games in Los Angeles. He explains:

How to shoot action

Use a fast shutter speed if you want to freeze the action; I would recommend 1/1000 sec for most sports. Use AI Servo mode for follow focus while shooting bursts of action. On the EOS-1D X you can also set one of the back buttons to shoot High-speed Continuous drive, which is capable of shooting 12fps. Shooting 'wide open' will not only increase your shutter speed, but it will help to isolate your subject from the background. If you've paid for an f/2.8 lens, then get your money's worth.

Use panning to show movement

I love the way panning gives a sense of art and movement. If you have an Image Stabilizer on your lens, use it on Mode 2 as that helps to get your subject sharp while giving lovely, streaky lines behind. Try 1/60 sec, but it is possible to go as low as 1/15 sec if you can master a nice smooth panning technique. At such a low shutter speed the panning streaks will be longer, but the picture only works if you have at least one part of the subject totally sharp.

Panning can be a very effective technique in all manner of sports

Practise and be critical

You'll learn far more from sitting in the rain shooting Sunday morning football than reading camera manuals. The more time you spend taking pictures, the greater the chance you'll get a better picture. And when you've got a good picture, be critical with yourself. How could it be better?

A fast shutter speed is crucial for freezing the action and sharp shots, no matter what sport you're shooting

The only way to really improve your sports photography is to get out there, practise, and learn from your mistakes

Is the background messy? How's the composition? Should I try a different lens? You've probably got a memory card that can shoot 1,000 frames, so there's no excuse for not shooting plenty.

GIANCARLO COLOMBO

Freelance Italian photographer Giancarlo Colombo has been shooting sports for over 35 years. He advises:

A wide-angle view can help tell the whole story better than a close-up

Know your sports

You have to know what you are going to shoot so you can choose the best way to 'realize' each photo. Every sport and every athlete is different from the rest, so the best way to achieve good photos is not only to know the particular sport or athlete you are going to follow but also to observe the work of those who are better than you and learn from them.

Less is more

You may take thousands of shots but, if they aren't good enough to be used, all the work you have done was just a waste of time. It'll mean trawling through endless unusable photos later, which quickly becomes a tedious process. So pick and choose your moments carefully, rather than adopting a scattergun approach.

Use multiple cameras

I work with three DSLRs with different lenses on each – when photographing sports you simply don't have time to change lenses. If I have to move I work with a 24-70mm f/2.8L and a 300mm f/2.8L because they are more manageable. If I have to stay in the same place I work with 400mm f/2.8L and 600mm f/4L lenses.

It's better to carefully time your shots, rather than 'spray and pray'

Use a polarizer to eliminate reflections and cut through water

JULIAN ELLIOTT

Julian Elliott is a landscape and travel photographer from the UK who lives and works in France. He says:

Get the most from Autumn colour

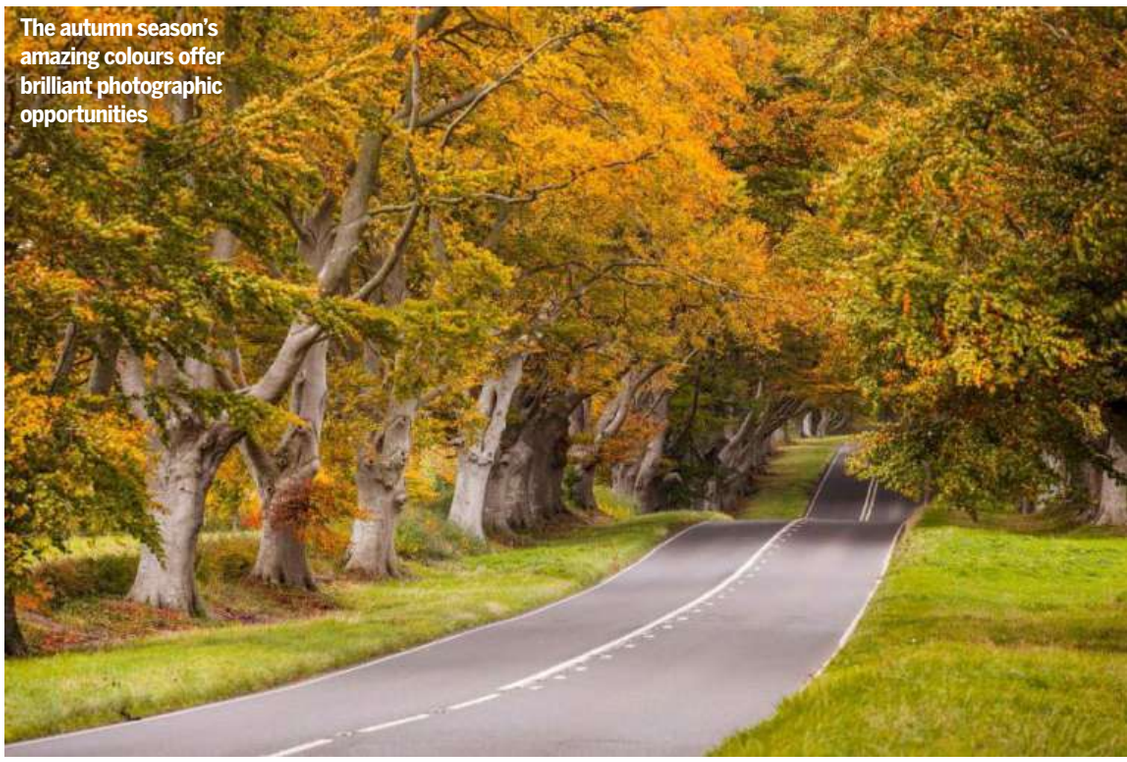
Although autumn can bring changeable weather, it is this that can give us dramatic skies or diffuse light in woodland settings. A softly lit woodland scene, with a river reflecting the colourful leaves, can be just as inspiring as the dawn light sweeping across the landscape.

Think carefully about aperture settings

Narrow apertures give greater depth of field, but don't make the mistake of going too narrow or you'll introduce diffraction and soften your image. I usually find f/11 to be the best compromise between depth of field and image sharpness, and the absolute maximum I'll go to is f/16.

Keep a polarizer in your bag

My 105mm Heliopan polarizer is brilliant for really punchy skies. But is just as useful when I'm in woodland; the polarizer removes reflections from both water and any damp foliage that is around.



The autumn season's amazing colours offer brilliant photographic opportunities

Choose your lenses carefully

Landscape photography is all about using a wide-angle lens, right? Well, while wide-angles are useful if you have the sweeping landscape laid out in front of you, a telephoto lens can zoom in for more detailed scenes while helping to compress the image. I often reach for my 70-200mm or 24-70mm lenses, which helps my photographs show a better sense of scale than my wide-angle lenses.

A good landscape shot needs a focal point to engage viewers' interest

JOEL SANTOS

Joel Santos is a landscape and travel photographer from Portugal. He reveals his tips:

Look for the best light

Light is the primary raw material of any photo, so always look for the best light – colour, direction, intensity and contrast – in landscape photography.

Compose carefully

Consider your composition carefully, namely where the main subject or focal point (a rock, a tree or a path) should be and what's the established visual relationship with the remaining supporting elements (mountains, a forest or a plain).

Add a human element

Escape from the traditional approach to landscapes and include a person in your shot; this creates a stronger emotional connection, adds a sense of scale and can even geographically place your location.

Contrast colours

If you shoot in colour think about how the dominant hues play together, since opposite colours on the 'colour circle' provide the most dramatic contrasts – like orange and blue – and will add an extra punch to the composition.

Use Live View

With Live View you can evaluate the RGB histogram for a perfect exposure, zoom in at 10x magnification for pin-sharp focusing, use the grids and electronic level for the best possible composition, play with white balance, and preview the depth-of-field, all before you take the shot.

LUCIE DEBELKOVA

Landscape and travel photographer Lucie Debelkova was born in Prague and has shot pictures in over 90 countries around the world. She says:

Turn off IS

When shooting a long exposure with your camera mounted on a tripod, switch off image stabilization, if your lens features this. If you keep it on, the camera is always trying to counteract potential camera shake, which can actually cause blurred images, even on the sturdiest tripod.

Use filters

The sky is usually much brighter than the land below, so, as digital cameras cannot match the dynamic range of the human eye, use a graduated neutral density filter to balance difficult lighting situations. Also use ND filters to slow down exposures for movement in water and clouds.

STUDIO/FLASH

EBERHARD SCHUY

Eberhard Schuy is based in Germany and specializes in advertising and industrial photography for a wide range of clients. He advises:

Mix technique and creativity

Good pictures are always determined by a mixture of technique and creativity. Use technique to emphasize your idea. For example, the EF 100mm f/2.8L Macro IS USM is a lens that represents subjects in a larger-than-life way, as if they were under a magnifying glass. Showing everyday objects with such an incredible level of detail makes them much more interesting.

Try to add fresh dimensions to images

One special technique that I love to use is to show objects with reflections and shadows 'mapped out' on different levels, as in the tea cup image, right. I use sheets of glass or plastic to achieve this effect, and this way, even with the simplest of products, I can add a special dimension to the images.

Don't make shooting objects too simple

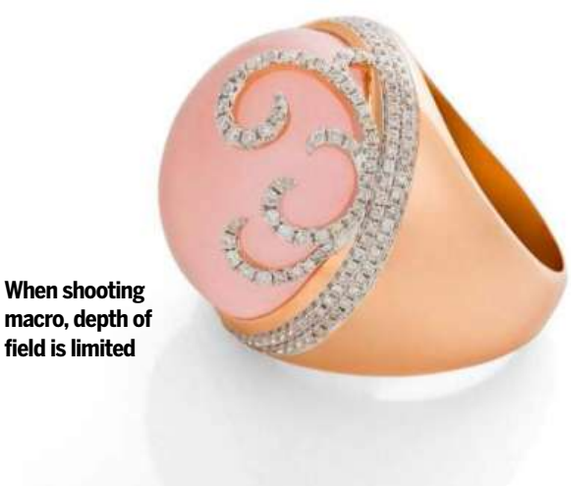
Try to play with objects to show them in an unusual position or in a special situation; this is what can make all the difference between a so-so picture and a stunning photograph. It is also best to employ the technique during the actual shoot, rather than faking it in post-production, whenever possible. For example, the TS-E 90mm f/2.8 tilt-shift lens is a favourite when I have to work with narrow areas of focus, as I can create the shallow depth of field in-camera, rather than Photoshop.

Use macro lenses to make small subjects appear much bigger

Experiment with unique shapes to help bring inanimate objects to life

Make the most out of reflections and shadows

Shoot in Manual exposure mode in a studio setting



When shooting macro, depth of field is limited

GARY SCHMID

Commercial and travel photographer Gary Schmid hails from Austria but now works out of his studio in Dubai. He notes:

Lens choice is key

My most important piece of equipment is the Canon EF 100mm f/2.8L Macro IS USM lens. It's a prime lens with the benefit of having no noticeable optical aberration. It is very sharp wide open, right into the corners, plus the autofocus is very fast, quiet and accurate, which is a must for me. I use this lens for 99% of my product images and also for almost all food photography in the studio and on location. But remember that with very close close-ups, in the macro area, the smallest changes in the focus point make a big difference, and even if you close your aperture fully the depth-of-field with macro is limited.

Stay connected

I always use my camera connected to a laptop or in the studio to a computer with bigger screen; for product and food photography you need a bigger screen to control the depth-of-field.

Control your studio shoot settings

In a controlled studio environment my camera settings are always Manual exposure mode with the shutter speed set to 1/200 sec to allow the strobes to be synced. I use the aperture to control the depth-of-field, and the power of the strobes is set to match this. I keep ISO low, at 100 or 160. I use Manual AF Point selection to precisely determine where I want my focus point. If you're running short of depth of field, remember that from your point of focus the depth-of-field will cover one-third in front of your point and two-thirds towards the back.

PORTRAITS

JÖRG KYAS

Jörg Kyas is an advertising, portrait, beauty and fashion photographer based in Germany. He advises...

Shoot with a wide aperture to separate your subject from their background

Wide apertures mean blurry backgrounds

By opening up your aperture, you direct the focus of attention on your subject, because your background is blurred and won't distract the eye of the viewer. Personally, I love shooting with a wide aperture and I use it whenever I can.

Choose the right lens

My two favourite lenses are the Canon EF 85mm f/1.8L USM and the Canon EF 50mm f/1.2L USM. They allow me to open up my aperture really wide to create a blurry background with a nice bokeh. The 85mm is a good lens for closer portraits, like headshots, while the 50mm is best suited for full-body shots.

Use HSS for action portraits

High-Speed Sync flash (HSS) allows you to shoot with flash at a much faster shutter speed than your camera would normally allow you to, which is around 1/250 sec. This means you can capture motion, and that makes HSS a must for action-filled shots.

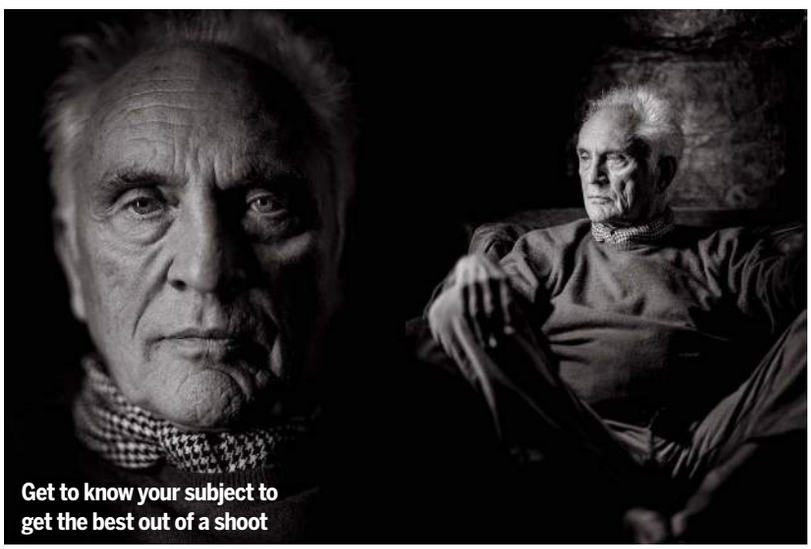
High-speed sync enables you to freeze action with flash-lit shots

Another plus point is that you can open your aperture to blur your background, because you can choose a higher shutter speed and still get the right exposure.

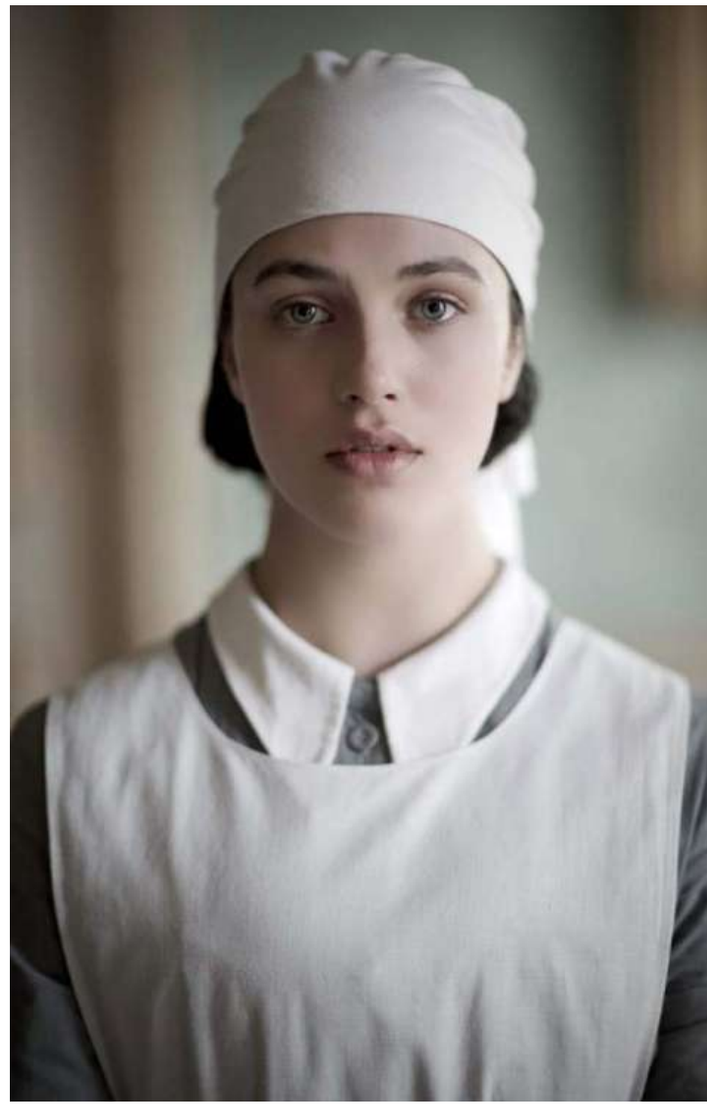
Make the eyes stand out

To make the eyes stand out, look vivid and fascinate the viewer, it is important to get a light reflection in your model's eyes, even if it's just a small one. This, and the structure of the iris, especially seen in blue eyes, can make the eyes really stand out and captivate the viewer.

Try to shoot people in their everyday environment



Get to know your subject to get the best out of a shoot



Should you get the opportunity to photograph an actor, ask them to get into character for a more intimate shot

CLIVE BOOTH

Clive Booth is a top fashion and portrait photographer and filmmaker from the UK. He says:

Be prepared!

As the majority of my work is on location I like to do a 'recce' and work out the best place for a picture. I like to know the direction of light at a given time of day and then decide on when and where is best to place the subject. Deciding on where to photograph a person can add a huge amount to a picture and give it a narrative or add mystery and intrigue. When I photographed chef Heston Blumenthal I decided to wade into the Fat Duck's kitchen whilst in service and have Heston static amongst a sea of chefs. Preparation can be a month, a day, or just minutes before a shoot, but the time spent preparing will pay huge dividends in results.

Build rapport with subject

To get the best from a subject it's vital to build a good rapport and put them at ease. When I photographed actor Terence Stamp we talked for a full 40 minutes before I took a picture. On the set of *Downton Abbey* I had just minutes to photograph Jessica Brown Findley. Thankfully I had researched her part in the show and I asked her to go into character, which at the time was a nurse – within seconds her eyes welled up with tears and she was a gift to photograph.

Use available light

My preference is for available light – my absolute favourite is soft window light. I like windows to have thick drapes to flag the light along with soft net drapes, which can act as diffusers, but if not I carry a large silk sheet to make my own diffuser. Drawing drapes can focus the light on the subject for dramatic half-light and a small reflector can be used to reflect light and add detail to the shadow. I work hard to make sure both eyes have highlights as it's the eyes that we connect with most.

10th Anniversary EOS 5D

Canon

Celebrating the iconic Canon EOS 5D series

From the groundbreaking Canon EOS 5D in 2005 to today's 50-megapixel marvel Canon EOS 5DS, we honour the 10-year evolution of the camera that brought full-frame DSLR photography to the masses

When the Canon EOS 5D was launched ten years ago, it set brave new standards in digital photography. It was the first affordable full-frame EOS DSLR, and offered advanced features, giving it broad appeal to serious enthusiasts and professional photographers across the world.

Over the past decade we've witnessed big digital technology advances in the EOS 5D series, as Canon released the 21-megapixel marvel that was the EOS 5D Mark II; which evolved into the even more impressive EOS 5D Mark III; and all of which helped shape the new, breathtaking 50-megapixel Canon EOS 5DS and 5DS R of today.

Through the in-house production of all key parts for its EOS series of digital cameras, Canon has created a highly robust lineup. Every EOS 5D model has been equipped to deliver the very best image performance, thanks to the evolution of innovative technology…

Every Canon EOS 5D series camera has a high-density magnesium alloy body, that's also handily compact, so you can travel light without compromising on quality

EVOLUTION OF THE CANON EOS 5D

2005

CANON EOS 5D

Originally launched in September 2005, the 12-megapixel EOS 5D transformed the DSLR market, being the first advanced enthusiast DSLR to incorporate a full-frame CMOS sensor in a more compact body. Available at a competitive price, the EOS 5D enabled enthusiasts to utilize the camera's impressive image quality and creative photographic tools that traditionally had been unique to professional DSLRs, significantly contributing to the widespread adoption and success of full-frame digital cameras.

12.8 megapixels ■ DIGIC II processor ■ ISO 50-3200 ■ 9 AF points ■ 2.5-inch LCD ■ 3 fps ■ No Live View ■ No video ■ CF card slot

2008

CANON EOS 5D MARK II

In November 2008, Canon launched the second-generation model in the 5D series – the renowned EOS 5D Mark II, which paved the way for moviemaking. The 21-megapixel camera revolutionised Full HD video capture for photographers, making big waves in the motion picture and video production industries, delivering large-sensor video performance at a very competitive price. It also captured brilliant, colour-rich photos that its competitors could only dream of matching.

21.1 megapixels ■ DIGIC 4 processor ■ ISO 50-25,600 ■ 9 AF points ■ 3-inch LCD ■ 3.9 fps ■ Live View ■ 1080p HD video ■ CF card slot

2012

CANON EOS 5D MARK III

In March 2012, Canon introduced the EOS 5D Mark III, which boasted significant improvements in still and video capabilities, as well as enhanced AF precision, and a faster 6fps burst rate – very impressive for a 22Mp full-frame camera. As one of Canon's flagship DSLRs, the EOS 5D Mark III has been a driving force for the innovation of the EOS series. Thanks to its spectacular image quality, high-ISO performance and fps speed, the EOS 5D Mark III has proved popular with portrait, landscape and sports pros.

22.3 megapixels ■ DIGIC 5+ processor ■ ISO 50-102,400 ■ 61 AF points ■ 3.2-inch LCD ■ 6 fps ■ Live View ■ 1080p HD video ■ CF and SD card slots

2015

CANON EOS 5DS/R

Most recently, in February 2015, Canon launched the EOS 5DS and EOS 5DS R – transforming the EOS system with a new breed of ultra-high resolution full-frame DSLRs. Breaking the boundaries of 35mm sensors, the new cameras offer the highest number of pixels ever seen in a full-frame sensor, an astonishing 50-megapixels. This medium-format slayer has brought incredible image quality to the masses, ideal for landscapes and cityscapes, enabling every level of photographer to enjoy its hugely detailed poster print-sized photos.

50.6 megapixels ■ DIGIC 6 processor ■ ISO 50-12,800 ■ 61 AF points ■ 3.2-inch LCD ■ 5 fps ■ Live View ■ 1080p HD video ■ CF and SD card slots

Alpine Autumn

Isérables, The Rhône Valley, Switzerland. 16:18 local time. 6 October 2006

01 Autumn colours at Isérables above the Rhône Valley, but the peaks look a little distant when shot with a midrange 38mm focal length

Lens	Canon EF 24-70mm f/2.8L USM
Exposure	1/13 sec, f/11, ISO100

No offence to the good people of the Netherlands, but I'm glad I'm not Dutch, says David Noton

As a landscape photographer I prefer scenes with a bit more elevation, like Nepal, or Switzerland. Let's face it: for epic grandeur you can't beat mountains, and in many ways the taller the better. But alpine environments are devilishly tricky to photograph because of two fundamental problems: light and scale.

Consider a Dutch photographer with tripod set up by a canal shooting a windmill – well, what else is there to shoot there? He or she will wait patiently for the perfect light, which is usually just before the sun sets, or after it rises. With no interruptions on the flat topography to cast shadows the light should just get better and better, right up until the moment it eventually sets. But here in Switzerland, shooting the vibrant autumn colours clinging to the steep hillsides around the village of Isérables in the Canton du Valais region, the sun will very soon disappear behind the mountains looming to the southwest, probably by mid-afternoon at this time of year. This valley will soon be cast into shade, meaning the only way I can use the kind of Happy Hour light Dutch photographers take for granted is by being on the summit of the highest mountain. Okay, I could don crampons and attempt the ascent of the north face of the Eiger, but the summits of mountains, while offering staggering views, are usually pretty bleak places; all rock and ice. I want to use these incredible autumn colours, which, in tandem with the lush greens in the hillsides, the flecked blue sky above and giant mountains all around, make for an unbeatably colourful combination.

All around are russet colours below jagged ridges. I'm tempted to reach for a wide-angle lens to get it all in, but experience has taught me that, in the mountains, even a peak as imposing as the Matterhorn will look less impressive then the Mendips when exposed through a fisheye. Wide glass is great for accentuating strong foregrounds, but distant objects, like the Alps, risk becoming inconsequential. No, the way to make mountains look big is with a long lens. I use my 70-200mm at 100mm to compress the perspective and emphasizes the scale of the jutting summits in relation to the trees and farmer's huts in the valley. I've no hope of getting it all in, but then again the best compositions are always the simplest.

The light arcing across the valley is crystal clear; side-lighting my scene of autumnal alpine majesty perfectly. A polarizing filter makes the colours positively pop out of my eyepiece. The shadow creeping up towards my tripod from the depths of darkness below indicates I've not much time left. Check exposure, focus, histogram; all look fine. Double-check tripod stability; one loose quick-release plate could rob the whole shoot of ultimate clarity. Check, then check again; 30 years of experience just serves to reinforce the message. Activate mirror lock – a must when shooting with a long lens on a tripod – and expose. I review the result; how can I make it better? I zoom in just a touch tighter, recheck focus, and press the shutter again. The monitor on the camera back glows; job done.

DAVID NOTON

Pro travel & landscape photographer

DAVID IS AN AWARD-WINNING Canon photographer with more than 28 years' professional experience. During his career David has travelled to just about every corner of the globe. In 2012, Canon invited David into its Ambassador Program by designating him an Official Canon Explorer. Info and photos at www.davidnoton.com

NEXT MONTH BONNIE SCOTLAND

02

“Incredible autumn colours, lush green hillsides, the blue sky and giant mountains make an unbeatable combination”

02 The vineyards on the hillside above Saillon are dominated by the towering alpine peaks

Lens	Canon EF 70-200mm f/2.8L IS USM
Exposure	1/20 sec, f/13, ISO100

03 Compressing perspective with a telephoto lens emphasizes the scale of the jutting mountains

Lens	Canon EF 70-200mm f/2.8L IS USM
Exposure	1/20 sec, f/11, ISO100

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PhotoPlus Canon Skills

Sharpen up your photography skills with our all-new photo projects and expert guides

Hollie Latham
Technique editor
hollie.latham@futurenet.com

Welcome...

WITH autumn upon us, we've been incredibly lucky to get outside and shoot all our projects this issue. To celebrate the 150th birthday of Alice in Wonderland, James Paterson and I recreate the Mad Hatter's tea party by shooting a magical multiplicity portrait. Tom Welsh goes off in search for the perfect reflection with a sheet of perspex in hand, and I shoot a portrait with a difference – a 'bokehrama' ultra-hi-res image with a super-shallow depth of field.

We also have a project to add a splash of colour to your day and, in honour of the Rugby World Cup, we've got some top tips on shooting moody sports portraits with off-camera flash.

Moving into the digital darkroom, learn how to transform a portrait into a larger-than-life character to create a movie poster. We introduce Photoshop's 3D controls in CC to render text, and we show you how to create web galleries in Lightroom's Web Module.

New projects with video guides

Follow our Canon DSLR walkthrough guides and Photoshop editing videos

48 Magical multiplicity
Shoot a Mad Hatter's tea party-inspired fantastical portrait
with James Paterson

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Perfect reflections of cities at night using a sheet of perspex
with Tom Welsh

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Create a 'bokehrama' for a super-shallow depth of field pano
with Hollie Latham

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Photograph six singular colours for a rainbow collage
with Tom Welsh

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Shoot a dramatic sports portrait using off-camera flash
with James Paterson

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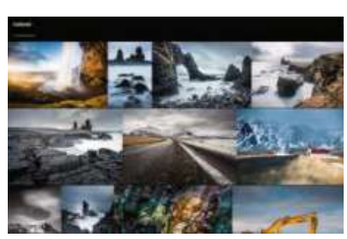
Transform a portrait to create a striking film poster
in Photoshop Elements

66 Make a seaside slogan
Learn how to render text in 3D for a trendy poster design
in Photoshop CC



68 Create web galleries
Display your images as web galleries with the Web Module
in Lightroom

VIEW THE VIDEOS

WHENEVER you see this icon you'll find an accompanying video – tap the link and the video will 'pop-out' of the page (as long as you have an internet connection). You can also download project files to your computer.

VIDEO ALSO ONLINE
http://bit.ly/pp_106_1

PhotoPlus CanonSkills VIEW THE VIDEO

PROJECT 1

Mad hatter's tea party

As Alice celebrates her 150th birthday in Wonderland, **James Paterson** disappears down the rabbit hole to create a multiplicity fantasy portrait

THE MISSION

Shoot and edit a multiplicity portrait by duplicating the same person over and over again

Time needed
One hour

Skill level
Intermediate

Kit needed
Tripod • Props and costumes • Home studio lighting kit • Photoshop CC

A multiplicity effect is an opportunity to create a playful scene by duplicating a subject several times. It's a fun technique, involving a clever combination of shooting and Photoshop skills. To celebrate the 150th anniversary of *Alice's Adventures in Wonderland*, we've recreated the Mad Hatter's Tea Party, with *PhotoPlus*'s very own technique editor Hollie Latham going 'all method' for each of Lewis Carroll's famous characters.

Whether you want to go all-out and create a bonkers scene like this, or just fill your sofa with identical buddies, the same technique applies. We keep the camera fixed to a tripod, then take a series of shots while the subject moves into different positions around the frame. As long as the lighting and exposure stays the same, it's easy enough to bring everything together in Photoshop.

We'll begin with the shooting part of the technique here, then show you how to piece the images together over the page. This is simple enough, even for those with very basic Photoshop skills. We bring the images together on separate layers, add layer masks, then paint to hide or reveal the areas that we want. Because everything surrounding each figure is aligned, we don't need to be too precise (unless there are points where figures overlap, then we need to be more accurate). It doesn't take long, and introduces fundamental Photoshop features like layers and masks.

STEP BY STEP SET UP YOUR SUBJECT

Discover how to prepare your camera and scene for a multiplicity portrait

LEWIS CARROLL: AUTHOR, POET & PHOTOGRAPHER

Popular from the moment it was published in 1865, Lewis Carroll's *Alice's Adventures in Wonderland* continues to inspire with its imaginative cast of characters. Fascinatingly, as well as an author and poet, Carroll was an accomplished photographer who mastered the challenging wet-collodion process in the early days of photography. Carroll had his own studio and favoured taking portraits, many of children.

01 A STEADY CAMERA
Use a tripod to ensure your camera stays still and in the same spot for each shot. This makes it easier to combine the images in Photoshop later. Take care not to move props or furniture between shots, either.

02 COMPOSE THE FRAME
Compose with plenty of empty space for your 'clones'. If you're using props and costumes, it can be helpful to do a quick dry-run or mock up a sketch beforehand, like this, to plan poses and characters.

03 CONSISTENT EXPOSURE
Exposure and lighting should stay consistent throughout, so set Manual mode and take test shots to determine the correct exposure. After focusing, set the lens to manual focus to prevent it searching.

04 LIGHTING THE SCENE
Watch out for changes in lighting, especially if the sun dips in and out of clouds. To add a cinematic look we used a couple of home studio flash heads, one positioned for frontal light, the other to the left.

TOP TIPS SIMPLE TECHNIQUES TO ADD TO THE EFFECT

01 DRESS UP
Costumes are an optional extra. But they do make the whole process a lot more fun, and give you a theme to run with. We hired a range of outfits from the wonderful Bath Theatrical Costume Hire.

02 MULTIPLY PROPS
It's not just people that can be multiplied, props can be too. An object, such as our out-of-focus blue flower, can appear as many times as you like. Simply fire off a shot for each new position.

03 SOFT FOREGROUND
When composing, try including out-of-focus foreground details like plants or tree branches to add depth. The apple tree here provides a natural frame for the image that draws the eye in.

04 DRESS THE SCENE
Multiplicity is a surreal effect, so why not make the scene look extraordinary too? Once we'd settled on a Mad Hatter's Tea Party theme, lots of props immediately sprung to mind.

05 TRY USING FLASH
On dry days, flash can work wonders outdoors, especially under a dark tree like this. We used a home studio kit, with two heads fitted with umbrellas, powered from a nearby mains socket.

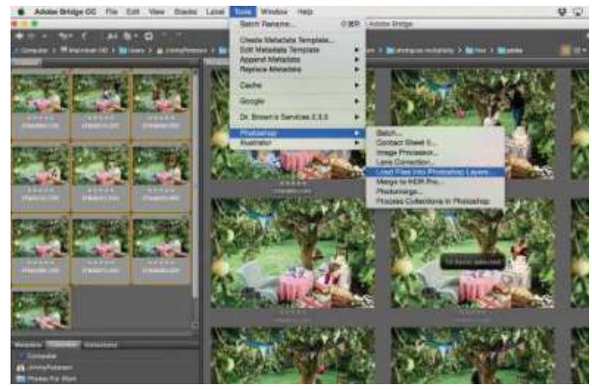
STEP BY STEP PIECE TOGETHER YOUR MONTAGE

How to merge all the characters into the scene with layers and masks in Photoshop CC

IT'S ALL BLACK AND WHITE

When painting on layer masks, a quick way to switch between foreground and background colours is to hit the X key, to swap between black or white and thus mask or reveal the layer below, respectively. For this to work the foreground and background colours need to be set to solid black and pure white – if not, simply hit D to reset them.

01 TONE AN IMAGE
Select the best poses by star-rating images in Bridge. Once done, right-click any image and 'Open in Camera Raw'. Use the Basic panel controls to improve tones, as shown. Click Done to exit back into Bridge,



02 COPY & PASTE ENHANCEMENTS
Right-click on the image. Choose Develop Settings> Copy Settings. Press Ctrl+A to select all, right-click and go Develop Settings>Paste Settings, then go to Tools>Photoshop>Load Files into Photoshop Layers.

03 ADD A MASK
Go to the Layers panel (Window>Layers) and give each layer a suitable name. Highlight the top layer and Alt-click the 'Add Layer Mask' icon in the Layers panel to add a black mask that completely hides the layer.

04 PAINT TO REVEAL
With the layer mask thumbnail highlighted, paint with white to reveal the hidden figure and blend them with the figure on the underlying layer. Grab the Brush tool, set colour to white, then paint over the hidden figure.

05 WORK DOWN THE LAYERS
Work down the layers using the same technique to firstly hide a layer, then reveal the part you want (leave the bottom layer unmasked). Swap layers around if you want one person in front of another.

06 FINE-TUNE THE MASKS
At points where figures overlap, identify which layer is on top, then highlight the mask thumbnail. Zoom in close, use a small brush tip and paint with black to hide parts of the layer until the edges look perfect.

NEXT MONTH
SHOOT URBAN LANDSCAPES AT NIGHT

TAKE IT FURTHER IT'S ALL IN THE DETAILS...

With layers and masking it's easy to add detailed effects that add to the story

01 INTERACTING CLONES
It takes a little planning to get your 'clones' interacting with one another. If a clone gestures one way, line up the next shot to match it. With a little digital trickery we can even add in extra details like the pouring tea here – to do this we copy in the tea image, then transform and mask.

02 STACKED CUPS
Precariously stacked cups can be created by shooting them in stages, holding each section of cups by hand. As long as you take care that the hands don't obscure the object, it's easy enough to blend the stack together with layer masks in the same way as everything else.

03 RABBIT'S HEAD
To give our rabbit more personality we can add proper eyes. An easy way to do this is to copy and paste eyes from a real person (in keeping with the theme, we used Hollie's eyes), then use masks to blend the edges. We also shaped the head with the liquify filter to make it more rabbit-like.

WHY NOT TRY? SUBTLE APPROACHES TO MULTIPLICITY

Rather than a complicated, crowded scene, set up a simpler portrait shot with fewer characters

ONE option when making a multiplicity portrait is to fill the scene with characters and props, or to put it another way, the 'chuck everything in bar the kitchen sink' approach. This what we did for our main image on the previous page. But why not try a subtler approach to the subject? Here, by using a long focal length to compress the angle of view and a wide aperture to keep depth of field shallow, we can create a more discreet effect that at first glance looks almost normal. We use the same technique as before, and make sure we lock off the focus by switching it to manual focus.

VIDEO ALSO ONLINE
http://bit.ly/pp_106_2

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PROJECT 2

THE MISSION

Use perspex to create an exact reflection of a cityscape

Time needed
One hour

Skill level
Intermediate

Kit needed
Tripod • Wide-angle lens • Sheet of dark, reflective perspex

Double vision images

For a new take on urban photography, **Tom Welsh** heads out to duplicate a cityscape using a trick of perspective and a sheet of perspex

For a new take on the standard cityscape, we are going to turn busy, inner-city life upside-down. By playing with perspective – and a sheet of perspex – we can double up the view of the city for a strikingly sharp reflection.

Reflections are all around us, visible in everything from rivers to windows, and every shiny surface in-between. But in this technique we're going to create an artificial reflection by placing a reflective sheet of material in front of a cityscape to create a mirror image of the scene, for perfect symmetry and incredible clarity.

While there are a wide variety of surfaces that will work, we've opted for a sheet of black-tinted perspex. The reflective qualities of the perspex are enough for a mirror-like reflection, while the darkness of the material keeps it realistically subtle. As the perspex is much closer to the camera than the scene it's reflecting, we need to position it carefully to create a perfectly straight horizon. It's also important to avoid having too much depth is the scene as this would ruin the illusion. Because of this we have concentrated on a small segment of a scene, rather than a vast city view.

There are some tricky aspects to pulling off the effect. Getting the correct angle is the most difficult, as the reflection only becomes visible when shooting low, across the sheet. A wide-angle lens and narrow aperture is vital for keeping everything in focus. We'd also suggest shooting a brightly-lit city scene as we've used for the best reflections and results.

STEP BY STEP DOUBLE YOUR VIEW OF THE CITY

Master the art of perspective, using a black perspex sheet to reflect on city night life. . .

01 LEVEL LINES
Find a clear line of buildings with a level horizon to avoid any depth from features being closer to the lens. Shoot somewhere with a wall or table that you can position your perspex on. We've shot Millennium Square in Bristol at night for this bright, vibrant scene.

02 SQUEEZE IT ALL IN
It is best to use a wide-angle lens; as we will be shooting close up to the perspex, fitting a large scene in may prove difficult. We've used a 17mm focal length for our cityscape. Using a longer lens will result in the reflection and scene being much smaller.

03 GET THE RIGHT ANGLE
Set up your perspex on the raised platform. Position your tripod low down so that around 1/4 of the lens is pointing underneath the perspex and almost touching it. Set your focal length slightly wider than you need so that you can crop away the floor in the foreground.

04 TUNE TO COMPOSITION
Line up the horizon and your perspex using the central autofocus points so the reflection is equal in size to the buildings. Position your perspex while looking through the viewfinder so it is perfectly level with the horizon and one side isn't taller than the other.

05 STAYING SHARP
As the perspex sheet and buildings are far away from one another, you'll need to use a narrow aperture to keep it all in focus. We shot at f/16 to make sure that both the scene and reflection appear sharp, while not pushing the lens's diffraction limit too far.

06 SHAKE-FREE SHOOTING
Shooting at night with a narrow aperture requires a longer shutter speed to let enough light into the lens – our exposure time was 15 secs. Disable any image stabilization and shoot with a remote release, or use the 2-sec Self-timer, to avoid any camera shake.

MAKE SURE IT'S SHARP

If you are struggling to get the whole image sharp, take two images, one focused on the building, the other on the perspex. Open the images in Photoshop, drag the perspex-focused image onto the building image and line them up using the Move tool. Use the Marquee tool, set to a rectangle, and draw around reflection, making sure that the rectangle is level along the perspex horizon, then click the 'Add Vector Mask' icon at the bottom of the Layers panel.

QUICK TIP!

Use a second tripod and a fence, or similar, to create a table for the perspex if you cannot find a suitable flat surface to put it on

NEXT MONTH
FORCED PERSPECTIVE

VIDEO ALSO ONLINE
http://bit.ly/pp_106_3

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PROJECT 3

See the bigger picture

Hollie Latham shows you how to shoot and stitch a bokeh panorama using the Brenizer technique to achieve a shallow depth of field

THE MISSION

Shoot a wide-angle portrait with extreme bokeh

Time needed
One day

Skill level
Advanced

Kit needed
Fast telephoto lens
• Photoshop CS/CC or Elements

A 'bokehrama' is a series of images stitched together to create a scene that's far bigger and more detailed than could normally be achieved.

It's similar to the conventional panoramic photograph, but instead of only stitching images horizontally to form a wider-than-normal scene, images are also stitched vertically to create a final image that's both wide and tall, effectively increasing the sensor size of the camera.

This ingenious technique, developed by wedding photographer Ryan Brenizer, enables you to create an image with the intimacy and natural-looking perspective of a wide angle of view combined with a really shallow depth of field for beautiful blur in the foreground and background, which is impossible to achieve in a single shot taken with a wide-angle lens.

Our image was created from nearly 100 images, each shot at 200mm with a wide maximum aperture of f/2.8. To show you how effective this technique is we stood in exactly the same spot, at the same distance from our subject, and used the same 200mm focal length to take a single shot, and only captured a small portion of our subject.

And while switching to a 24mm wide-angle lens achieves roughly the same crop as the bokehrama, the scene is far more sharply focused, losing the beautiful blur that only shooting wide open with a telephoto lens can achieve.

STEP BY STEP HOW TO SHOOT A PORTRAIT PANORAMA

Consistent camera and lens settings and a precise technique is the key for the best bokehramas

01 DEPTH OF FIELD
We used Canon's EF 70-200mm f/2.8L IS USM, at 200mm and wide open at f/2.8. The narrow angle of view, combined with a wide aperture, gives a really shallow depth of field for the beautiful bokeh effect.

02 MANUAL MODE
It's vital your settings remain the same for each shot to ensure a smooth stitch, so switch to Manual mode and set the widest aperture. Meter the exposure and increase ISO for a faster shutter speed, if required.

EFFECTIVELY SPEAKING

Use this online calculator to work out the effective focal length and aperture of your bokehrama: http://bit.ly/bokehrama

STITCHED UP

Start off shooting a small sequence of 8-10 shots to keep things simple. Once you've refined the technique, build it up to a series of 40-50 shots. For bokehramas with 30+ shots you may need to stitch in sections if the Photomerge tool is struggling. Stitch ten images at a time and combine sections using layer masks.

03 FILE SIZE
There's no need to shoot large Raw files as the final output will be high-quality anyway, and big files mean dramatically longer processing times. Select one of the small JPEG options in the Image Quality menu.

04 WHITE BALANCE
The white balance also needs to be consistent so the colour temperature doesn't shift. So avoid AWB and select a white balance preset from the options available to suit the conditions. We set ours to Cloudy.

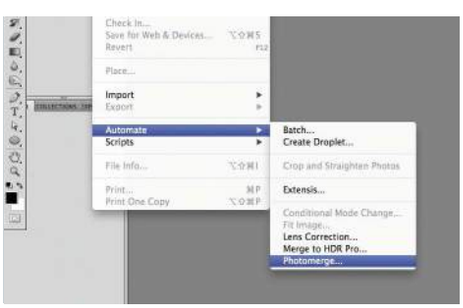
05 FOCUSING
Focus on your subject's face for your first shot. The focus needs to remain the same for all the images, so switch to MF to lock the focus. It's also vital you don't move from your spot, as otherwise the focus will shift.

06 SEQUENCE SHOOTING
To ensure you capture every aspect of the scene, shoot in rows from top-left to bottom-right (many frames will be out of focus, which is fine). Ensure that each frame overlaps by a third for smooth stitching.

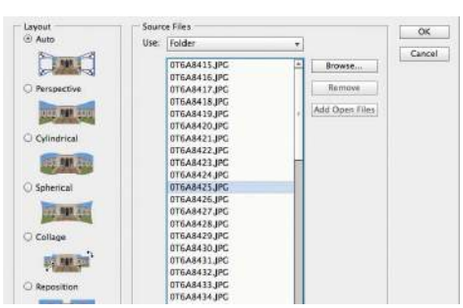
NEXT MONTH
WINTER PORTRAITS

STEP BY STEP GET BLENDING

How to stitch up a beautiful bokehrama in Photoshop



01 PHOTOMERGE TOOL
Photoshop does all the really hard work for you with its Photomerge tool. This is available in Elements, CS and CC, but are all located in slightly different menus. In Photoshop Elements 13 go to Enhance> Photomerge>Photomerge Panorama.



02 OPEN FILES
Click the Browse button and navigate to your files (or click Add Open Files to use all open files if you've already opened them in the Elements editor). Select a layout, we found Auto works the best. Ensure Blend Images Together is checked and click OK.

03 FINE-TUNE
Each file becomes a separate layer with its own layer mask where it's been blended to create the bokehrama. If the tool hasn't done an accurate job, you can edit the layers and masks to fine-tune the stitch. Finally, crop ragged edges for a tidy finish.

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PROJECT 4

Brighten up your day

Tom Welsh shows how to shoot a series of singular colours for a striking collage

THE MISSION

Create a rainbow collage by shooting six different single-colour images

Time needed
One hour

Skill level
Easy

Kit needed
Kit lens • Photo-editing software

NEXT MONTH
COLOUR-FOIL REFLECTIONS

For this creative project we are going to focus on shooting only one colour in each image. Images made up predominantly of a single colour are simple yet striking, lending themselves to strong art prints and posters.

Urban environments are overflowing with splashes of colour, while a walk in the countryside will supply a glorious mix of greens and vibrant flowers for variation. Or you can bring props into the shoot; bright clothing or a collection of blue balloons in the sky will add vibrancy that you may not find in everyday scenes.

Displaying your collection of images in a collage further shows off the contrasting colours. Take a moment to think about the layout of your grid; position the images to complement one another, and to break up similar colours or straight lines.

EDITING ARRANGE YOUR COLLAGE

For an A4 collage, create a new document measuring 29.7x21cm – we used Photoshop CC, though most programs will have the necessary features. Resize each of your six images to 9.9x10.5cm and open each on a separate layer. Drag the image layers into place, positioning them to break up colours and any straight lines.

STEP BY STEP SHOOT A RAINBOW WORLD

Bring your environment to life by shooting colourful objects for a vibrant collage

01 FIND THE COLOURS
Search your local area for vibrant colours. Use a standard lens to zoom in on details to capture splashes of individual colour. If you run out of colours in the natural or urban environment, try using props.

02 BLENDING IN
When shooting a subject that doesn't completely fill the frame, shoot it against a similar-coloured backdrop. We placed a sheet of coloured paper behind the flower to hide the distracting background.

03 MACRO FRAMING
Shooting up close with a shallow depth of field helps distort the subject for an abstract impression that keeps the focus on the colour, leaving only macro clues of the subject actually is.

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THE MISSION

Use off-camera flash outdoors to create a dramatic sports portrait

Time needed
One hour

Skill level
Intermediate

Kit needed
2x flashguns • 2x tripods or light stands • Radio flash transmitter/receiver

Shoot moody sports portraits using flash

Armed with a pair of flashguns, **James Paterson** tackles the subject of off-camera flash-lit photography for a dramatic outdoor portrait

With the Rugby World Cup in full swing it's a fine time to go out and shoot a sports portrait. At this time of year, though, there's a good chance conditions will be damp, dull and grey – perfect for a game of rugger, perhaps, but not exactly ideal for portraits. However, with the help of a couple of Speedlites you can add drama on a dreary day and bag a shot that's as satisfying as a spectacular try.

The key is to fire the Speedlites off-camera and light the subject from different angles. By cross-lighting our rugby player with two flashes we get the dramatic look you often see in pro sports portraits. For this we place one of our flashes behind the subject, angled back towards the camera, and the second flash in front to illuminate the face and body. You'll need the right kit to pull off a shot like this, but expensive lights aren't necessary. All we need is a burst of light that we can control manually, which even the most basic flash units can do.

When balancing daylight with multiple flashes things can quickly get complicated, so we'll show you a foolproof method to work out your exposure and flash power. It's a simple process – first we work out a 'normal' exposure, as if shooting with just daylight, then we underexpose this so that the sky becomes dark and moody, which also leaves the subject underexposed. At this point we bring our flashes into play to pick him out, setting the power level of each flash manually and building the light until everything clicks.

Mastering off-camera flash gives you so many options for great portraits, and often enables you to turn tricky conditions to your advantage. So let's get started. Or rather crouch… touch… pause… engage!

PROJECT 5

STEP BY STEP LEARN TO BUILD UP THE LIGHTING

Learn how to balance daylight and flash to create moody lighting for outdoor portraits

When shooting with daylight on its own, there's only ever really one 'correct' exposure for the scene. But using daylight and flash together we are, in effect, combining two exposures into one – the first for the natural daylight, the second for the flash. So to begin we set Manual exposure mode and work out a 'normal' exposure for the daylight. Then we underexpose the natural light by two stops (resulting in our exposure of 1/200 sec, f/11, ISO100) which gives us a dark, moody backdrop and underexposed subject. From now on we don't touch our exposure, but use flash to lift our subject. With multiple flashes, it helps to build the lighting one flash at a time. First we backlight the subject, then light the face.

QUICK TIP!
With off-camera flash, it's easier to use Manual mode than E-TTL – simply take test shots and adjust the power level accordingly

01 UNDEREXPOSE THE DAYLIGHT
Set Manual mode, shutter speed 1/200 sec, but close the aperture by two stops to underexpose (we went from f/5.6 to f/11).

02 BACKLIGHT THE SUBJECT
Set one flash behind the subject, angled towards them. Adjust power manually until it creates a highlight outlining their edge.

03 LIGHT THE FACE
Position a second flash, with the light from above the subject, so that the shadow cast by the nose is angled towards the mouth.

ESSENTIAL KIT ALL YOU NEED TO FLASH OUTDOORS

01 TWO FLASHES
You'll need two flashes. Alongside a Canon 600EX, we used a Godox 560 (less than £30 from eBay). It's basic, but it has all we need – manual power control and an optical (line of sight) slave mode.

02 WIRELESS TRIGGER
A wireless trigger and receiver lets you fire a Speedlite off-camera. If you don't have one, you might be able to use your pop-up flash to trigger the Speedlites, but this relies on line of sight.

03 TRIPOD FOR CAMERA
A tripod is optional, but it helps when working out your composition to keep the camera in roughly the same position, and it's convenient to leave the camera fixed while you tweak the lighting.

04 PLASTIC FLASH STAND
The plastic flash stand that comes in the box along with your flashgun can act as a handy connector that allows you to attach your flash to your tripod plate using the thread on the underside.

05 LIGHT STAND/TRIPOD
You'll need a tripod or light stand for each flashgun. Some light stands have threads on the top that can screw directly into your flash, but if not you'll need an adapter, to attach each flash to a stand.

STEP BY STEP FIRE YOUR FLASH OFF-CAMERA

Learn how to trigger off-camera flashes with a combination of wireless triggers and slave units

TRIGGER SPEEDLITES WITH YOUR POP-UP

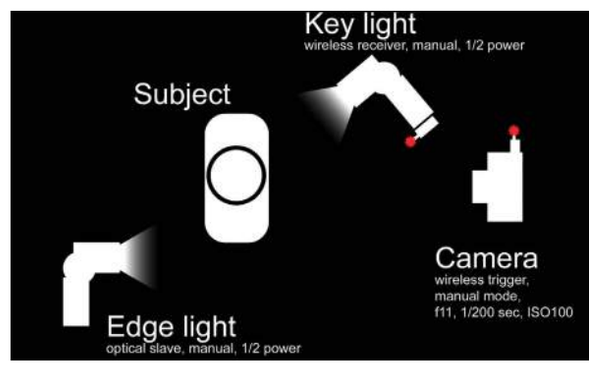
We used a wireless trigger to fire our flashguns, but if you don't have one you could use your Canon DSLR's pop-up flash instead. Using the Flash Control Menu, your pop-up flash can communicate with compatible Speedlites through a series of rapid pre-flashes. A simpler method is to simply set the pop-up flash to a low power, like 1/128 (so that it has a minimal effect on the image), then set both off-camera flashes to optical slave mode, so that they fire when they detect the pop-up flash.

NEXT MONTH
STROBOSCOPIC FLASH SHOTS

01 USE A WIRELESS TRIGGER
The wireless transmitter attaches to your DSLR's hotshoe, while the receiver has a hotshoe for the flashgun. When you hit the shutter, the transmitter sends a radio signal to the receiver, which fires the flashgun instantaneously, as if it were on the camera.

02 SET OPTICAL SLAVE
With the wireless receiver firing the first Speedlite, set the second to optical slave mode so that it fires upon detecting the burst of light from the first unit. Slave is often displayed on flashguns as S1 or S2. S1 fires upon detecting any flash, while S2 ignores the pre-flash.

03 CONTROL THE POWER
Set both flashguns to Manual mode then take test shots while adjusting the strength to work out the power of your exposure (see previous page). Bear in mind that you can also control the strength by moving the flash closer or further away from your subject.



04 POSITION THE LIGHTS
For our cross-lighting setup, position the 'edge' light behind the subject to illuminate the outline of the body without spilling across the face and nose, while the 'key' light should be directed from the front, slightly above and to the right of the face.

CAMERA SKILLS FLASH-LIT SPORTS PORTRAITS

Take control of exposure, camera angle and focal length for best results

SHOOTING IN
Manual mode makes things easier, as we don't want our metering system to kick in. Once we've worked out an exposure that results in a dark sky, we can then leave the settings alone while we use flash to pick out our subject.

CROUCH DOWN for a low angle to not only frame your subject against the moody sky but to make them appear tall and powerful. Use a longish focal length (we used the long end of a 24-105mm lens), as wide angles can distort the body shape.

STEP BY STEP GET THE GRITTY LOOK

Use Camera Raw to process your images for a moody, desaturated finish

01 PROCESS IN CAMERA RAW
Open the image in ACR (or Lightroom, which has identical controls in the Develop Module) then go to the Basic panel. To get a gritty look, increase Clarity to about 75. Use the Shadows slider to lift the shadows and the Highlights slider to darken the highlights for an HDR-like effect.

02 DESATURATE THE COLOURS
For a desaturated look, lower the Saturation slider slightly. You can then counter this by increasing the Vibrance slider to lift weaker colours. Experiment with the Temp and Tint sliders; a slightly cooler tone can work well, so drag the Temp slider a little to the left.

03 DODGE & BURN
Grab the Adjustment Brush from the Toolbar and zoom in close to the eyes. Set up the brush first by increasing Exposure, Clarity and Saturation, then paint over the eyes to lift them. Next, hit N for a new adjustment, then dial in negative exposure and paint over the sky to darken it.

TAKE IT FURTHER EXPERIMENT WITH POSES & LIGHTING

Subtle changes to the camera angle, pose and position of your lights can lead to a variety of effects

It's worth experimenting with the two-light setup by changing either the angle of the lights or the camera position. Try out different poses, too, as slight shifts to the angle of the body can have a big effect on the overall feel of the portrait. The key is not to light the subject from straight-on, as this kills all the shadows that add depth to the subject's face and body, and is why it's better not to have the flash mounted on your camera. If you must keep your Speedlite on-camera, at least soften the light and make it more directional by bouncing it off a nearby surface – a wall or ceiling indoors, or a reflector outdoors.

VIDEO ALSO ONLINE
http://bit.ly/pp_106_6

PhotoPlus CanonSkills VIEW THE VIDEO

PHOTOSHOP ELEMENTS

THE MISSION

Turn a portrait into a stylized poster

Time needed
30 minutes

Skill level
Intermediate

Kit needed
Photoshop Elements

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Make a movie poster

Design a striking film poster with larger-than-life characters using these simple techniques with the assistance of director **James Paterson**

If you need inspiration for a Photoshop project, take a look at the latest film posters. They are often at the cutting edge of Photoshop design, merging photography with type, graphics and effects, and we'll show you how to create your own.

As well as learning how to position images and words for a striking design, we'll also show you how to turn people into larger-than-life CGI-like characters with the Liquify filter.

What's more, you'll learn how to use layer styles to give your type impact, and we'll even show you how to make a quick digital snowstorm. With these techniques you could make your own spoof posters with friends and family in the leading roles, complete with your own comedy film titles and taglines. You could even make posters to go with a movie you've shot on your camera.

These skills aren't just useful for posters; they come in handy for any work that involves combining photography and type.

STEP BY STEP CREATE CARICATURES FROM PORTRAITS

Transform a portrait image into a cartoonish rendition, then add text for a feature film poster look

01 ENLARGE THE EYES

Open the starting image and press Ctrl+J. Go to Filter>Distort>Liquify. Click the Bloat tool, then resize the brush until it's larger than the eyeball. Click each eye a few times to enlarge them, then switch to the Pucker tool and shrink the pupils.

02 THIN THE CHIN

Use the Warp tool to push in the nose and chin so that they're small and pointy, and make the neck thinner. Push the mouth around to give it a subtle smile. Click OK. Next, click the New Layer icon in the Layers panel and click the Brush tool.

03 PAINT WHITE EDGES

Set brush opacity to 30%, then paint with a large soft-edged brush around the edges to fade it. Create a new Brightness/Contrast adjustment layer, set Contrast 21, Brightness 24. Add a Photo Filter adjustment layer – Cooling Filter (82).

04 ADD GREEN EYES

Add a Hue/Saturation adjustment layer. Check Colorize and set Hue 120, Saturation 60. Press Ctrl+I. Paint white over the irises. Next click the Type tool. Choose the 'Trajan Pro' font in black, then click the image and type a title.

05 TYPE THE WORDS

Grab the Move tool, check Show Bounding Box, then click the box to transform and resize the title. Go to Layer>Layer Style>Style Settings and check Drop Shadow. Set Angle 120, Size 5, Distance 16, Opacity 36. Add more words with new fonts.

06 MAKE THE SNOW

Fill a new layer below the type with black, then go to Filter>Noise>Add Noise. Choose Amount 400, Type: Gaussian, Monochromatic. Then Filter>Artistic>Dry Brush>OK, then Filter>Blur>Gaussian Blur. Set 1px. Set Screen blending mode.

There's a storm coming...

BEFORE

AFTER

THE
WINTER WITCH

WINTER 2015

HORSE'S MOUTH FILMS AND BEAJULAIS PRODUCTIONS PRESENT
A FILM BY JOHN SUMMERS, PATRICIA HIGHPORT, REGGIE KESTREL, MABEL JONES, DESIYAH, ERIC GREY, SADIE BLACK, DESIREE DONALDSON
CASTING BY DICK RICHARDS DIRECTOR OF PHOTOGRAPHY ROBERT LEIGH PRODUCED BY FOSTER KENNEDY AND DANDY SMITHSON DIRECTED BY JED NORRIS

VIDEO ALSO ONLINE
http://bit.ly/pp_106_7

PhotoPlus CanonSkills VIEW THE VIDEO

PHOTOSHOP CC

THE MISSION

Create 3D words, match them to a photo, then light and colour them

Time needed
30 minutes

Skill level
Intermediate

Kit needed
Photoshop CC

Make a standout seaside slogan

James Paterson delves into Photoshop's 3D controls to explain how to render text in 3D for a contemporary print

Over the past few years Photoshop's 3D controls have become much more intuitive. Beginners only need grasp a few basics in order to create and place 3D words. First we create our 3D text, then match it to our photo and finish off by adding colours, materials, lights and a reflection.

To make a 3D shape, we either use one of the basic 'mesh presets' (which includes spheres, cones and – for some reason – a wine bottle), or we make a flat shape that we then 'extrude'. This simply means adding depth to a shape, as if we were cutting it out of a plank of wood. With text, this means we can turn flat letters into 3D blocks, then position them in our scene.

When placing objects, there's a difference between rotating an object, or your view of it. Imagine that your view is like a flying camera that can go anywhere. Here we want to match the view of the object to the camera angle and scene, which involves a neat trick with the Vanishing Point filter. Once the view is set we can then position our objects in the scene. This is best done with the colourful axis widget, as it allows you to move, rotate or stretch around each axis by dragging different parts of the axis.

The sheer number of 3D settings in Photoshop can seem daunting at first, but once you learn the fundamentals things quickly start to make sense. Master these basic controls and you'll be well equipped to explore further into the wonderful world of 3D.

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STEP BY STEP GET TO GRIPS WITH 3D TYPE

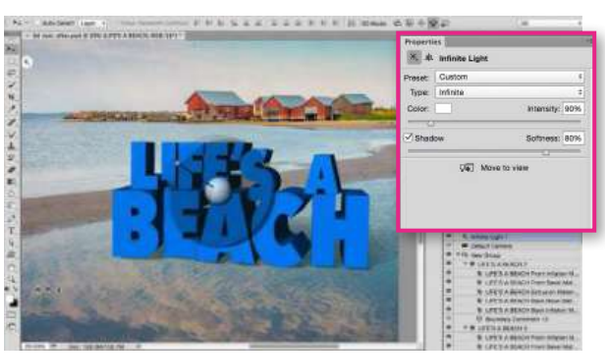
How to extrude, light, colour and position 3D letters in a scene using Photoshop CC

01 TYPE YOUR WORDS
Open beach_before and grab the Type tool. Select a blocky font (Avenir Next Condensed Heavy) and type away. Use the Character and Paragraph panels to arrange text and tweak the leading and kerning. Next go to 3D>New 3D Extrusion From Selected Layer.

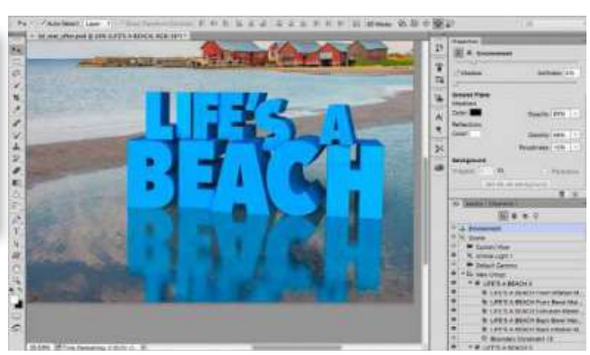
02 MATCH THE PERSPECTIVE
Highlight the 'Background' layer. Go Filter>Vanishing Point. Plot a grid that follows the perspective of the ground, hit OK. Highlight the 3D layer. Go to the 3D panel, click Current View. Go to the Properties panel, select Vanishing Point Grid from the View drop-down.

03 POSITION THE LETTERS
Click on the letters with the Move tool shape then go to 3D>Move Object To Ground Plane. Drag the 'Move on Z/X' and 'Rotate around Y' parts of the axis widget to roughly position the letters. Go 3D>Split Extrusion, then click each letter to position independently.

04 ADD MATERIALS
Hold Ctrl then, in the 3D panel, click on the 'Front Inflation Material' and 'Extrusion Material' for every shape. Go to the Properties panel, click the Materials drop-down and choose 'Plastic Glossy Blue'. Click the Diffuse setting if you want to change the colour.



05 LIGHT THE LETTERS
Click 'Infinite Light' in the 3D panel. Drag the handle to direct the light from the left. In the Properties panel change Shadow Softness to 80%. Click the Light icon in the 3D Panel to add a new Infinite Light from the right, then set Intensity 50%, Shadow Softness 100%.



06 ADD A REFLECTION
Click 'Environment' in the 3D panel. In the Properties panel, under 'Ground Plane', set Reflections Opacity 60%, Roughness 15%. Click Render at the bottom of the 3D panel. Once done, go to the Layers panel, right-click the layer and 'Rasterize 3D'.

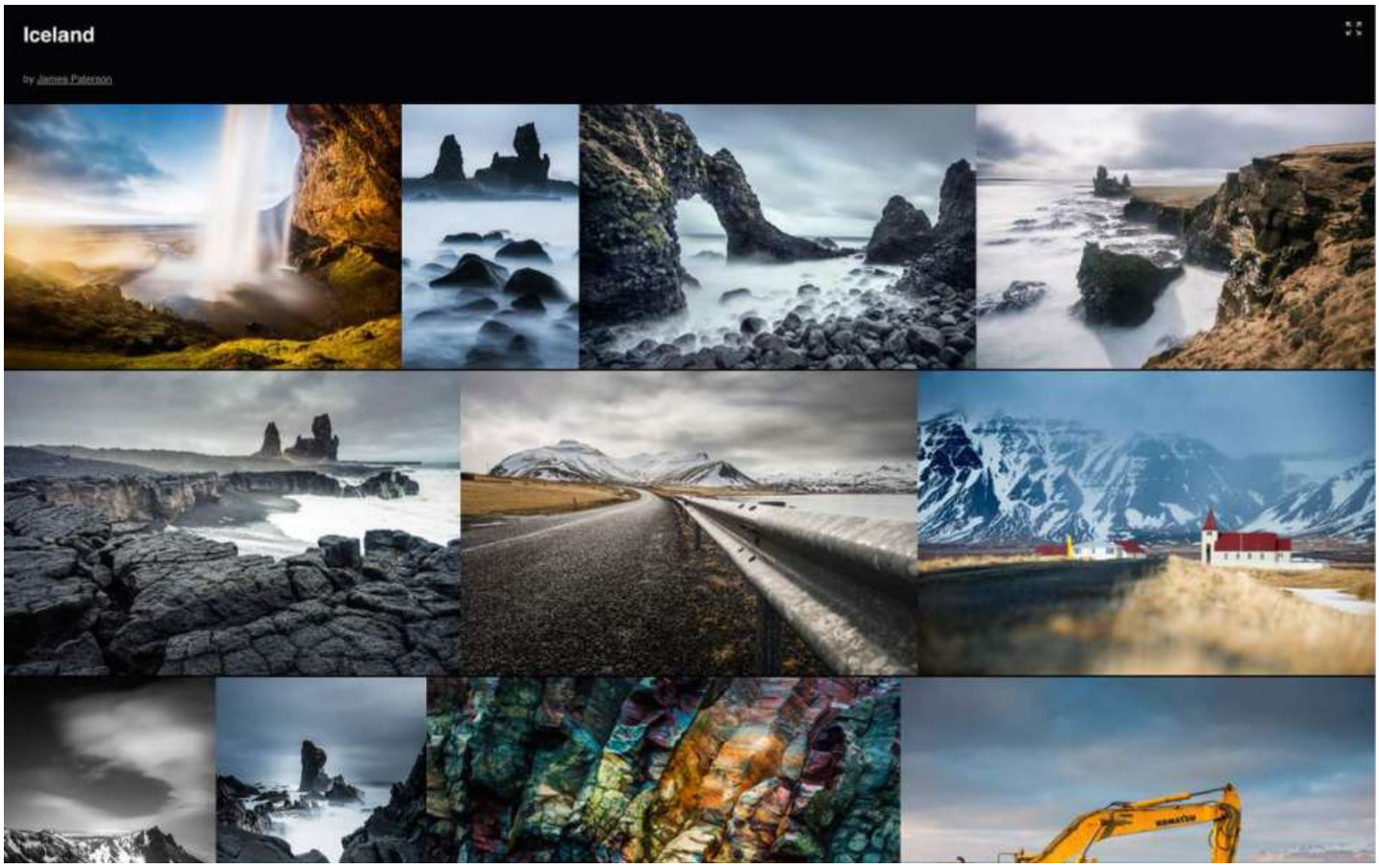
THE 3D PANEL

An important point to grasp is that the 3D panel houses all the elements that make up the 3D space. So, as well as the shapes, there are things like lights, materials and viewing options. Each element you click on in the 3D panel opens up a new set of options in the Properties panel. It's this to-and-fro between the 3D and Properties panels that is the key to controlling the look of each element, and it's why, once you first make a 3D shape, you'll be prompted to switch to the 3D workspace, where the 3D and Properties panels are on display.

QUICK TIP!

Photoshop supports most common 3D shape formats, so why not download free shapes from sites such as 3D Warehouse?

NEXT MONTH
DODGE & BURN



THE MISSION

Design a web gallery to showcase your images

Time needed
10 minutes

Skill level
Easy

Kit needed
Lightroom

Create galleries with the Web Module

Get to grips with web galleries and showcase your best images in a modern way – **James Paterson** shows you how using Lightroom

Lightroom's web gallery offers a simple way to make your own custom gallery web pages. With over 20 templates to choose from, it's easy enough to drop your own images straight into a ready-made gallery page and then simply upload them to the web. But, as you'd expect with Lightroom, there are also lots of customizable features that enable you to fine-tune the look of your gallery so that it suits your selection of images. You can choose the colour scheme, set the size and order of the images, add text and contact details, and much more.

In Lightroom 6 and CC, Adobe has replaced the older Flash galleries found in Lightroom 5 with new HTML5 galleries. Unlike the Flash-based galleries, which don't show on Apple iOS devices, the new HTML5 galleries (such as the Grid, Square and Track templates) are compatible with all mobile devices and will adapt to fit on different screen sizes. They also look much more modern. In fact, it's best to steer clear of the 'Classic Gallery Templates' unless you want your gallery to look like it was made in 2002.

Lightroom's web galleries don't really offer anything that can't be found – or perhaps even bettered – elsewhere. With gallery hosts like Flickr, 500px or even Facebook offering beautiful, modern ways to showcase your images, it's worth bearing in mind that the Web Module isn't the only option. But the ease with which things can be done in Lightroom is a big bonus. Of course, the most important part of making a gallery is choosing the right images for it. So being able to pluck images from your library and gather them together into a professional-looking gallery directly within Lightroom certainly has its benefits.

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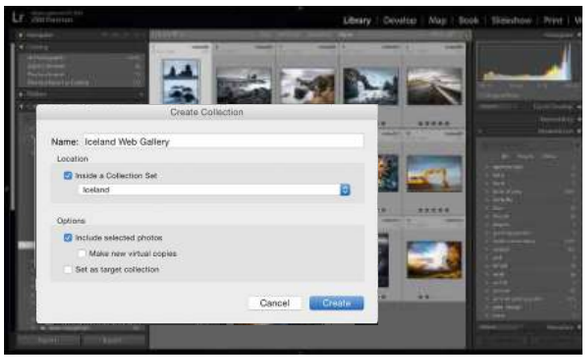
STEP BY STEP MAKE A WEB GALLERY IN LIGHTROOM

Create a stylish tile-based gallery page in seconds with simple Lightroom controls



01 GATHER YOUR IMAGES

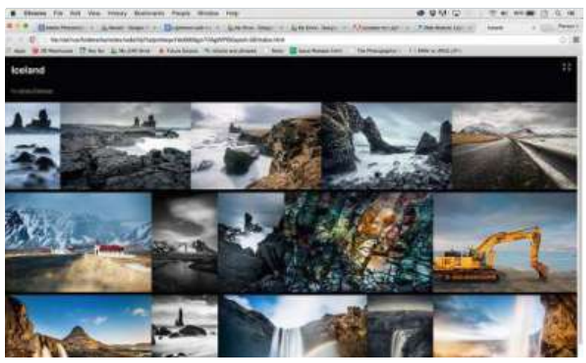
Begin by selecting the images for your gallery. The best way to do this is to make a Collection. Go to the Library Module and click the plus icon in the Collections panel on the left. Name it, then drag images to it to add them to your collection.

02 CHOOSE A GALLERY TEMPLATE

Once you're happy with your choice of images, click the Web Module at the top. Go to the Template Browser panel to the top left; you'll find the complete list of 25 ready-made gallery templates. Click through until you find one you like (we've used 'Track Gallery').

03 ADD CONTACT DETAILS

Go to the Site Info panel at the top right. Here you can add a name to the gallery that appears at the top left, and include your name and website link (type 'mailto:' then your email if you want to make it a contact link). Any fields left blank will delete the area from the page.

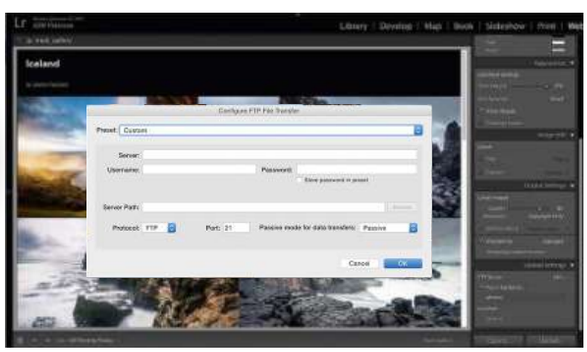


04 PREVIEW IN A BROWSER

Click the 'Preview in Browser' button at the bottom left to view the gallery in a browser, just as it would appear on the web. To change the order of the images, go back to the Library Module, hit G for a grid view then drag the images around to change the order.

05 FINE-TUNE THE APPEARANCE

Use the Colour Palette and Appearance panels to tweak the look of your gallery. Next go to the Output settings. Here you can turn on watermarking and choose a sharpening level. Lightroom automatically sharpens your images for the output size.



06 EXPORT OR UPLOAD

You may want to restrict metadata to 'Copyright only' in the output settings to prevent contact or GPS data being included. Finally, click Upload to upload to your server (enter the details in the Upload Settings panel first) or Export to save all the assets into a folder.

QUICK TIP!

Once you're happy with your gallery, save it as a template in the Template Browser to use the same style with other image sets

QUICKLY EMAIL PHOTOS IN LIGHTROOM

If you often email photos, then you're probably used to the usual laborious method of opening the image, resizing it to an email-friendly size, saving a copy, then attaching it to an email. Lightroom offers a much easier way. Simply select the images in Lightroom then go to File>Email Photos. Open the Email Account Manager in the 'From' drop-down and add an account (there are presets for Gmail, Hotmail, Yahoo and AOL), select a resize preset for the email such as '500px long edge, medium quality', add your words, then you can send the resized images straight from Lightroom.

NEXT MONTH
LIGHTROOM MOBILE APP

HOWARD SCHATZ

Howard Schatz's prolific photographic output has combined artistic exploration with technical precision. He talks to David Clark about his insatiable curiosity and the 'treasure hunt' of photography

Howard Schatz has had not just one successful career, but two. As a young man he trained to be a doctor, going on to become a distinguished retinal specialist.

However, photography was also a passion from a young age and in his late 40s he made the leap to becoming a professional photographer.

Since then he's had a highly varied career, photographing A-list actors and homeless people, boxers and dancers, fine art botanical studies and models underwater. The impressive range of subjects he has tackled are shown in a new, limited-edition retrospective, which contains over 1000 images from more than 30 diverse projects.

Howard is now 75 years of age, but there's no sign of him slowing down. On the day of our telephone interview, we were due to talk at 9am New York time, which he then brought forward to 8am. At 7.45am, having already been jogging and eager to get started, he sent me an email saying, "Ready!"

And so we began…

01 UNDERWATER STUDY #2657
Russian-American model Nadia Kazakova, photographed by Howard in 2005, with her reflection in the water surface above

Lens	Canon EF 17-40mm f/4L USM
Exposure	1/125 sec, f/5.6, ISO50

02 UNDERWATER STUDY #2615
In this colourful underwater fashion shoot, model Nadia Kazakova was shot in a purpose-built tank with an EOS-1Ds Mk II in a dedicated underwater housing

Lens	Canon EF 17-40mm f/4L USM
Exposure	1/125 sec, f/4, ISO50

03 AMANDA COBB, BALLERINA
"To get the ribbons to 'fly' behind her, we put a transparent belt around her waist and attached it to a black cord. Then I directed my assistants to pull her across the frame," says Howard

Lens	Canon EF 17-40mm f/4L USM
Exposure	1/125 sec, f/9, ISO50

04 INTO THE BLUE
Howard created this spectacular image, featuring six images of the same model in a rose-like pattern, for an Escada fragrance launch in 2005

Lens	Canon EF 16-35mm f/2.8L USM

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What was it that came first – medicine or photography?
I was already a junior medical student when I was introduced to 35mm photography in the early 1960s. I went on to become a high-end retina specialist, and I also taught at Harvard and did research. However, I always liked looking at pictures from a young age and took photographs in my spare time. It wasn't until 1987, when my second daughter left for college, that I decided to devote one day a week to making pictures seriously.

How long did you continue with both careers?
After eight years and four or five books, and a number of museum and gallery shows, we started getting commissions for commercial and editorial work, but I didn't have time to do it. So in 1995, my wife Beverly suggested we go from San Francisco to New York, and just spend a year's sabbatical away from work. The year was so rich and fun and exciting and anxiety-provoking and educational – thrilling, actually – that we kept extending the sabbatical. I've never looked back.

What's the main difference between working as a scientist and as an artist?
The important part of being a physician, and especially a retinal surgeon, is getting it exactly right down to the micron level. In the creative arts it's about trying things and making mistakes. There's no risk involved. It's a treasure

04

hunt trying to find magical, wonderful, spectacular imagery. Science is about being careful and thoughtful, exacting and perfectionistic about every detail. Life as an artist is about being really open to all sorts of things.

Are you technically fastidious in your photography?
I prepare, sometimes for days, for a shoot, and at the time of the shoot I'm very exacting about things like the placement of lights, reflectors and so on. But once that's done, once the 'surgical suite' is set, then it's about being crazy. It's about letting go and trying everything and feeling free. It's an exploration.

Did your medical experience help you in your second career?
I learned a lot from medicine. I learned how to study a situation, about methodology. When I'm in my studio I know how to change one variable at a time, make notes, study the changes and go on to learn things. The other thing is, as a retina specialist I dealt with patients who were very anxious about going blind. I learned to behave in such a way that, within a minute or two, a patient would feel they were in the right place. That's helped me a great deal in portrait photography. I can have any kind of person in my studio, whether they're extremely famous or not known to anybody, and behave in such a way that they'll feel a sense of comfort.

You've shot many different photo projects. How do you choose?
Yes, I've done over 40 individual projects with a wide range of subjects. In order to do one of them, it has to touch something in me emotionally. I have to be so fascinated to do it. People suggest ideas for projects to me, but virtually never has someone come up with an idea that resonates with me. For me to do something it has to come from inside to make it happen.

Is there a thread to your work?
That's for others to say. If I looked at it as an outsider, I'd say I do have a certain aesthetic. My work is not all messy and mixed up; the images are sort of clean. I live that way, our cabinets are empty and we don't have a lot of things around.

> **"Being a physician is about getting it exactly right. With creative arts it's about making mistakes"**

There's a lot of space. It's modern and minimal and my work is a lot like that.

How long did it take you to perfect your underwater work?
It took me six months. There are major problems to solve in underwater work, such as lighting effectively, producing natural skin tones, getting the right water temperature, overcoming problems caused by chlorine and keeping the water crystal clear. After six months of making pictures and making notes I was able to do it. Then I started making images that nobody had made before. In 2002, I had a pool built specially for photography at our home in Connecticut. I'm able to light in this pool in a very similar way to how I could light in a normal studio. Using it, I make pictures that you cannot make in a regular pool.

And how did your project on actors improvising originate?
I had the opportunity to photograph Robin Williams for a book called *Virtuoso*. I photographed him underwater and would make up parts for him. I'd say things like, 'You're a big black football player and you're going to come and kill the white quarterback,' and he would keep coming up with ways of expressing the idea. I saw then that actors can take words and make a human being. I realized that it would make a great project and that's how it began.

Did you approach *Vanity Fair* with the idea for a series?
No, they approached me. In 2006 I did a book called *In Character: Actors Acting* and then *Vanity Fair* called me and said we love this idea, can you do it for us? So over the next six years I did one of these shoots a month. I would make up parts and write them out on note cards, and then I'd get the actors to improvise them. They would transform themselves. Some of them were filmed and you can see how I did it on my website.

When did you start using Canon?
I switched to Canon around 2005, using an EOS-1Ds in a housing for my underwater work. Then, when I began a project on boxing, I shot with Canon from ringside. For my work with actors, I found when I worked with Hasselblad cameras in the studio, I couldn't get my focus fast enough when they changed their face. So I went to Canon for the fast focus. Today I use the Canon EOS-1D X for much of my work, especially when I'm working underwater and when I need to be

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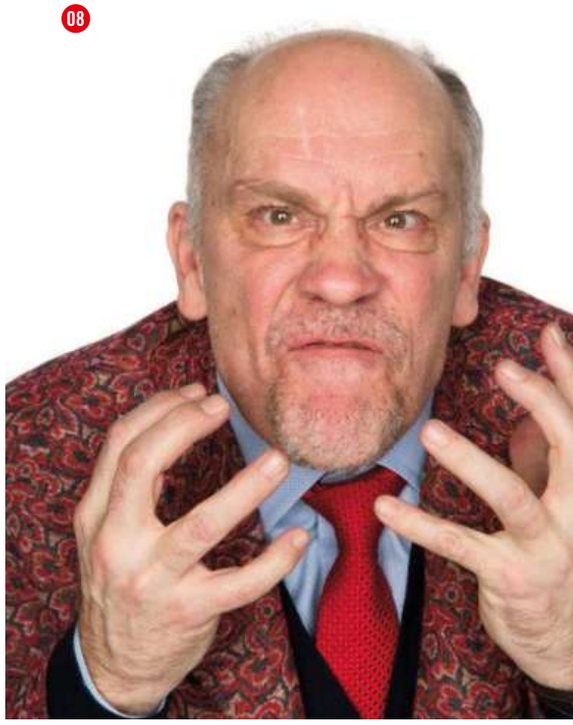


shooting fast. I now have about six or seven Canon bodies.

Which lenses do you use now?
I have most of the Canon lenses. For shots I take when I'm walking around, I use a 24-105mm. I have an 85mm f/1.2, but I rarely use it now you can push ISO so high; you don't really need a fast lens. When I did my boxing project, I had three cameras. One had a 16-35mm and I would stick that in the boxer's face as they sat on the stool between rounds; when they were fighting close to me I used a 24-70mm and when they were on the other side of the ring I'd get a close-up with the 70-200mm. When I'm working underwater, I mainly use the 16-35mm f/2.8 and occasionally the 17-40mm f/4.

How did you select the images for *Schatz Images: 25 Years*?
No artist can work in isolation. You need an editor. You need somebody to see the work in an unbiased way. So, after we decided to do a retrospective, we hired a world-renowned, very accomplished photo editor. We looked through all 40-plus projects I've done and over four million images. I edited, my wife Beverly edited and he edited. I committed that any image in the retrospective had to be chosen by all three of us. If one of us said no, we left it out. So there are 500 other images that I loved and meant a lot to me that never got in the book because one of the others said 'It's a 9.5 and not a 10', but every image in the book I love.

The range of subjects in the book is unusually wide...
Yes it is. Looking at the retrospective you can see who I am and what I'm about. I'm just so curious about so many things and I've been blessed with a 5,000 square foot photo studio where I can explore anything. Most of it has been personal work, but I've also done enough commercial work to pay for the addiction of my curiosity. I've never been afraid of spending money on assistants, stylists, set designers, makeup people and models to try to find magic. The other thing is, in a way I'm a little nerdy. I'll come upon a project that interests me and I won't let go. I'm interested in many things and I'm blessed to be able to explore them.

Was it a great feeling to see this retrospective completed?
Having this retrospective is a good feeling, but, for me, the joy was in the journey, in the making of the images. My pleasure, my happiness is not in seeing the images published. Yes, it's nice, I like it, but what really was great was the

> **"We looked through all 40-plus projects I've done and four million images. Every image in the book I love"**

05 ELISABETH MOSS
Howard asked actors to improvise characters on the spot. Here Elisabeth Moss is "the older, unmarried sister of the bride, pretending to be amused and delighted when the best man points out in his toast that Baby Sis got to the altar first"

Lens	Canon EF 24-70mm f/2.8L USM
Exposure	1/125 sec, f/9, ISO50

06 HUGH LAURIE
In this 2006 image, Howard asked Hugh Laurie to improvise this character: "You're a new father. You've told your wife she should take a few days off with her sister, and the twins have come down with colic"

Lens	Canon EF 24-70mm f/2.8L USM
Exposure	1/250 sec, f/14, ISO50

07 MICHAEL DOUGLAS
In this shot, Michael Douglas was asked to be "a 14-year-old girl, opening her older brother's bedroom door and seeing him in bed with a blow-up doll"

Lens	Canon EF 24-70mm f/2.8L USM
Exposure	1/125 sec, f/14, ISO50

08 JOHN MALKOVICH
Here John Malkovich was asked to be "a multi-millionaire clothing manufacturer who has made large donations to a presidential candidate, hearing him say that the days of outsourcing without significant financial penalties are over"

Lens	Canon EF 24-70mm f/2.8L USM
Exposure	1/125 sec, f/18, ISO50

treasure hunt of making of the images and secondarily editing them.

In what ways has your wife, Beverly, influenced your career?
In every way. I wouldn't have done this without her. I was a successful San Francisco physician and she suggested I become an artist, go to New York and take a sabbatical. She is the administrator and CEO of this whole thing. She does all the business side, deals with all the negotiations, all the commercial and editorial work, hires all the producers, stylists and assistants. But she doesn't tell me what to photograph, I'm free to explore. She will only look at the results.

Does she help with the editing?
Everybody needs an editor who loves them enough to be honest with them. If I show my pictures to my friends, they say 'oh, great, wonderful, terrific'. Friends are not good editors. Beverly is honest. She'll look at all the images, look at me and then she might say something like, 'It's well done, but there's nothing here that gets me. There's nothing that's so fantastically original that I'd want to show it to anybody.' She's just purely honest, telling me exactly how she feels without concern for my feelings, because she knows that we're only going to be successful if she does that.

You seem very driven by work...
I have what's called the 'brass butt' syndrome. I'm able to sit in one place and not get up until I get the work done. I'm able to really, really work hard.

Is your work now mostly personal?
I'd say about 95 per cent of it is personal. I don't want to do commissioned work and I turn down a lot of magazine work. Recently a famous magazine called me and said, 'We want you to do a lineup of athletes just like you did 15 years ago in your book *Athlete*.' I said, 'Is there any room for creativity, for making it different?' They said, 'No, we want it exactly like that.' So I said, 'Okay, get somebody else to do it.' Why would I want to do that? I don't want to be famous, I just want to surprise and delight myself. I want to try to see things I haven't seen before.

Is it about talent or hard work?
No matter how much talent you have, no matter how naturally creative you are,

09 SHANE MOSLEY
A composite of five images of former world boxing champion Shane Mosley, photographed by Howard in New York City in 2007

Lens	Canon EF 35mm f/1.4L USM
Exposure	Multiple images shot at 1/125, f/8

10 OLIVIA BOWMAN
The graceful movements of dancer Olivia Bowman were recorded with multiple strobe flashes during the exposure, using a Canon EOS-1Ds Mark II

Lens	Canon EF 50mm f/1.4 USM
Exposure	0.6 sec, f/8, ISO50

11 SERGIO MARTINEZ
Howard photographed former boxing champion Sergio Martinez in 2012. "My challenge was to show a boxer jumping rope using multiple strobe flashes and a frozen image of him all in one frame of exposure," says Howard.

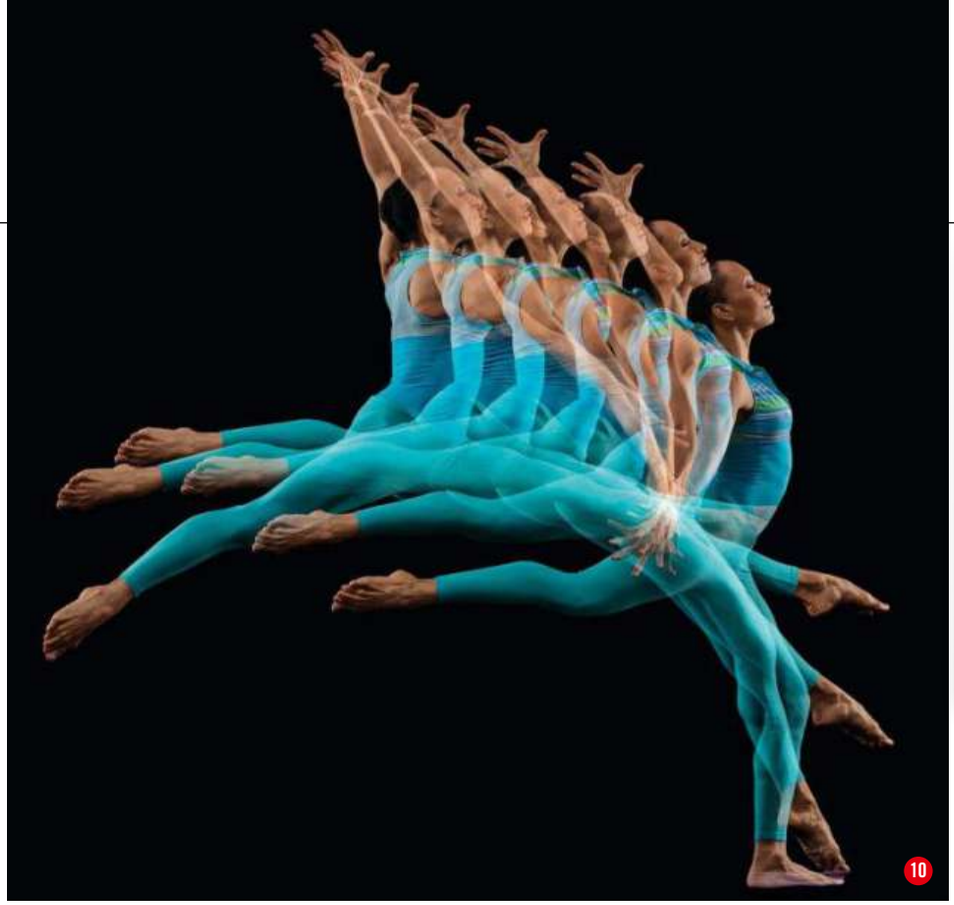
Lens	Canon EF 35mm f/1.4L USM
Exposure	Multiple images shot at 1/125 sec, f/8

STORY BEHIND THE SHOT

Motion study

Howard explains how he managed to create this striking composite image of American Olympic hurdler Allen Johnson in action

In 2001, Howard was working on his book *Athlete*, a collection of portraits and creative images of athletes in action. In this shot, he photographed hurdler Allen Johnson on a track at Columbia University in New York City. "The camera was frozen on a tripod and I set up a hurdle before and after the main one," Howard recalls. "Shooting at 8 frames per second as he ran, I was able to get 2-3 frames per hurdle. Each shot was taken at 1/1000 sec at f/5.6. He did it ten times so I had enough frames to make the collage/composite."



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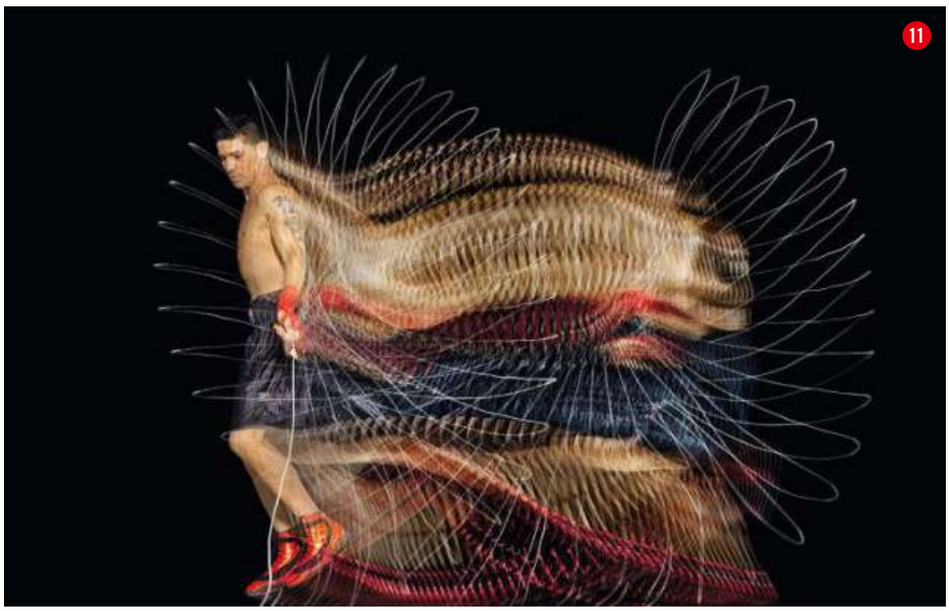

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you must work hard and give it time. Time is the greatest creator and the best editor. You may spend a lot of time making an image, but if you spend more time there's a chance the image will get even better. It's important not to be readily satisfied and to constantly keep searching. If you find a diamond, you have to keep digging to find a bigger one. That's a very important principle.

What's been your most commercially successful picture?
I did a project called *Body Knots*, for which I went in with a wide-angle and photographed these biologic sculptures. We sold one of these images to an advertising company to advertise a gastro-intestinal drug and it kept on reselling. It made me enough money for two years of work. Who'd have known?

What's the best advice you can offer an aspiring photographer?
Number one, study hard and see what's been done before in the area of your interest. You need a vast visual databank, so when you look through the camera you can say, 'I've seen this before, how can I do it differently?' It's important not to be on an island in your own limited search, it narrows you. Secondly, it's important not to be easily satisfied. Once you make a great image, ask yourself, how can I improve on this? It's also important to get your work out there, so people see it, and to not take no for an answer. But that's another job altogether.

PROFILE

Howard Schatz
Photographer

Howard was born in Chicago, USA, in 1940. He trained as a physician in the 1960s before becoming an ophthalmologist and retina specialist. He became a part-time professional photographer in 1987, then a full-time pro in 1995.

He has produced 20 books of his fine art, portrait and sports work, including *Pool Light* (1998), *Body Knots* (2000), *Nude Body Nude* (2001), *At the Fights: Inside the World of Professional Boxing* (2012) and *Caught in the Act: Actors Acting* (2013).

He has produced editorial photography for magazines including *Time*, *Vanity Fair*, *Sports Illustrated*, *Vogue* and *The New York Times Magazine*. His commercial clients include Coca-Cola, Ralph Lauren, Reebok, Sony and Mercedes-Benz.

Schatz Images: 25 Years is available as a signed, limited-edition book and buyers can choose any image from the book as a signed 11x14-inch print. See http://schatzimages25years-glitterati.com and http://bit.ly/SchatzImagesAmazon. To see more of Howard's work, visit his website at www.howardschatz.com

Next issue: American fine-art nature and landscape photographer Justin Reznick

PHOTOSTORIES

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One of the great things about photography is being able to share your view of the world. This issue, we hear the account of a volunteer teacher about her time in an African refugee camp and how she documented it; a day trip to Thai temples on a visitor's trip to the land of his forefathers; and how a set of poignant pet portraits helped an aneurysm and amnesia sufferer with his recuperation.

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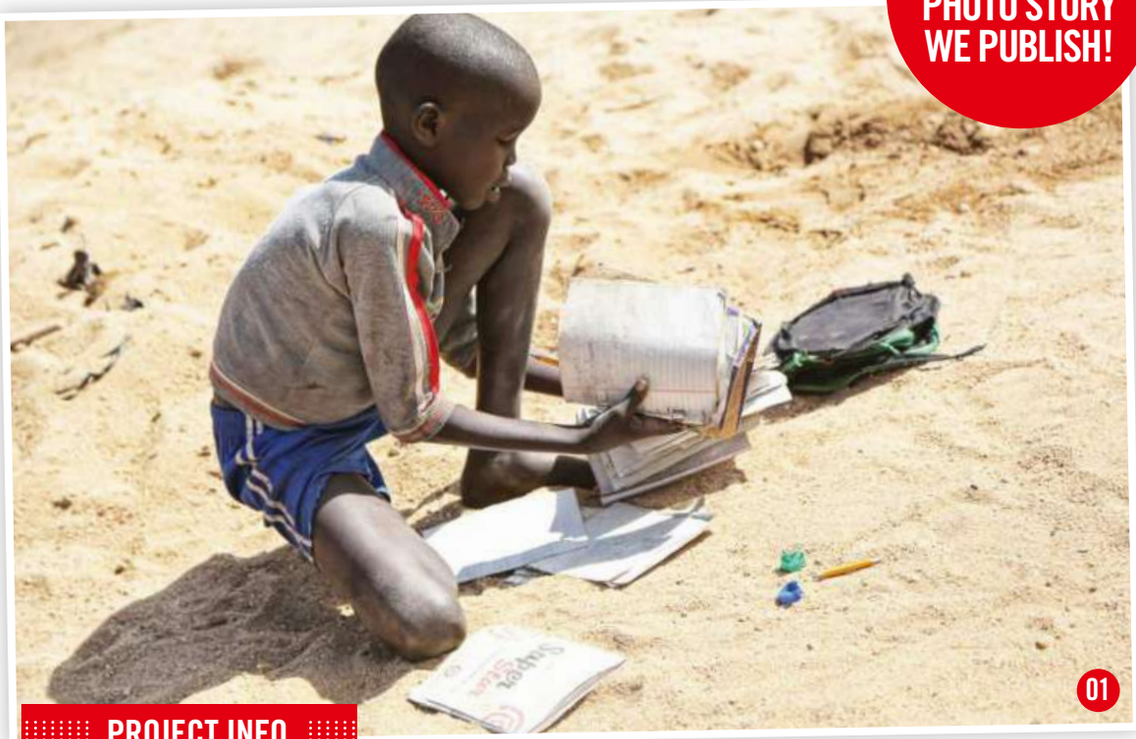


01

PROJECT INFO

NAME: Jane Hewitt

AGE: 56

LOCATION: Kenya

MISSION: To document the lives of people and their living conditions at Kakuma Refugee Camp in Kenya

KIT: Canon EOS 5D Mark III, Canon EF 24-105mm f/4L IS USM

www.janehewitt.wordpress.com

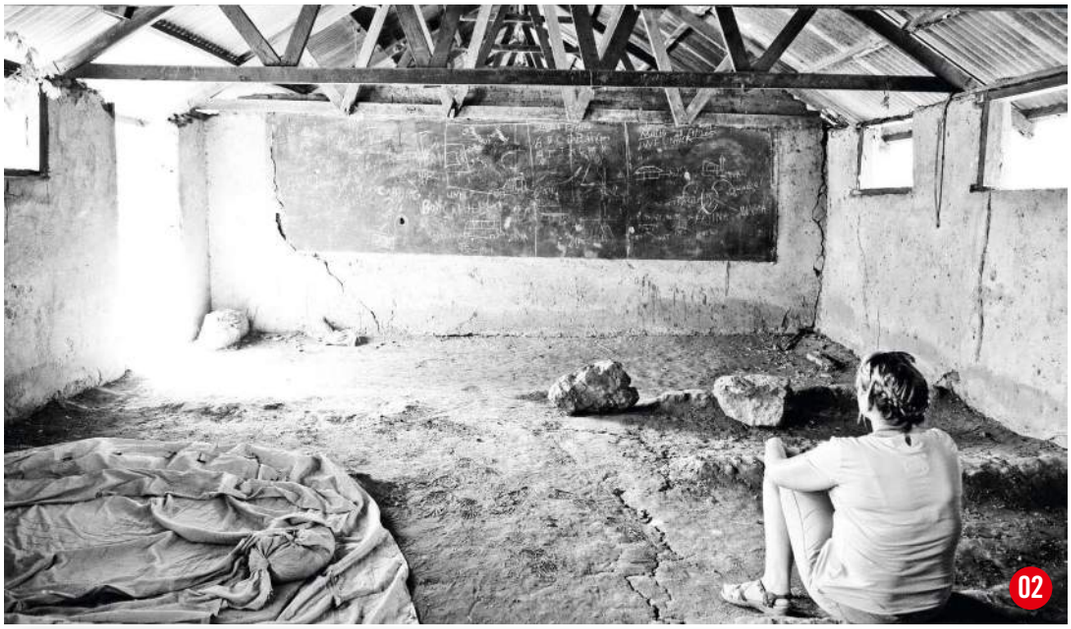
Conditions in Kakuma

Nothing can prepare you for what daily life in a refugee camp in Africa is like

In March this year I had the privilege of visiting and working in a school at Kakuma Refugee Camp (http://bit.ly/unhcrKak) in Kenya as a volunteer for the World Wide Education Project (www.wwep.org.uk).

I have previously worked in schools in Uganda but nothing can prepare you for what life is like for people living here, despite all the statistics I had read and research I had done. The camp was established in 1992, and now has over 189,000 inhabitants. A high percentage are just children – with many arriving unaccompanied.

Homes and dwellings ranged from tents and hastily constructed cardboard structures to mud-brick-built houses. My role was to teach, train teachers and document



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PhotoPlus FEEDBACK

In extreme, dusty conditions it's best not to change your lens, however, if you absolutely must switch lenses then hold your camera with the lens mount facing down when you do so to minimize the risk of dust falling into the camera body and settling on the sensor

It can be difficult to capture natural-looking portraits when your subjects are intrigued by your camera; as soon as you bring your camera up to your eye, children tend to start playing up, so try shooting from the hip and use Live View mode in conjunction with the rear LCD to help aid your composition

01 SCHOOL PLAYGROUND
The dust seeps into everything and makes paper almost unusable

Lens	Canon EF 24-105mm f/4L IS USM
Exposure	1/1000 sec, f/4.5, ISO125

02 CLASSROOM INTERIOR
Termites attack the fibre of the buildings, resulting in no seats and few resources

Lens	Canon EF 24-105mm f/4L IS USM
Exposure	1/160 sec, f/4, ISO6400

03 CLASS SIZES
Children are taught in classes of up to 200 pupils

Lens	Canon EF 24-105mm f/4L IS USM
Exposure	1/640 sec, f/4, ISO12,800

"I had to work with my 24-105mm lens exclusively; there was simply nowhere away from the dust to risk changing lenses"

the camp, to show schools back in the UK.

The biggest problem was the dust; it was everywhere! The part of the camp we were working in had no protection from the elements at all. Consequently I had no option but to work with my Canon EF 24-105mm f/4L IS USM lens exclusively; there was simply nowhere away from the dust to risk changing lenses. I had to rethink how I worked and physically move for the best composition, which meant standing on benches, crawling on the floor or squeezing into a class of 200.

The classrooms were dark and dusty – constant gentle wiping of the filter that I had fortunately placed on my lens to protect it and high ISO was required. As a result some of the images were noisy, so converting them to black and white gave them more punch. Harsh sunlight and heat meant images had to be taken in the shade, where possible.

Some people were very wary and didn't want their photo taken. Others were happy to pose, so it was important to be polite, ask permission and take my lead from them. This is street photography at a whole different level.

Being in a position to work alongside refugees and understand their way of life meant I gained their trust and they were happy to have their photographs taken. But I had the opposite problem with children, who would flock around me whenever I took my camera out, making natural shots very difficult. Watching for moments and trying to get natural shots was difficult but still worth it.

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Ancient Temples of Thailand

Creating a story arc by capturing ruins with light from dawn, daytime and dusk

PROJECT INFO

NAME: Gavin Danapong

AGE: 29

LOCATION: Ayutthaya, Thailand

MISSION: To capture the beauty and essence of Thailand's ancient temples

KIT: Canon EOS 6D, Canon EF 17-40mm f/4L USM, Gitzo GT1544T tripod, Really Right Stuff BH-40 LR ballhead, circular polarizer filter

www.gavin.photography
www.facebook.com/gavindanapongphotography

Thailand has always been a distant ancestral home for me as most of my family lives there, although I was born and raised in the United States myself.

During this particular trip, I asked my family to take me somewhere that I could shoot landscapes. Ayutthaya was brought up, which I had never been to before. This ancient city is rich in history and full of awe-inspiring temples.

With only one day to explore, we had to pick and choose which temples to visit. I wanted to capture them in a fresh and relevant way. Fortunately, they each had their own unique character, which was fun to tease out while shooting.

The biggest challenge was deciding where to go during the day. Fortunately, our hired driver knew the perfect spots. At our last stop of the day, the sun was just starting to set. Having lugged around heavy gear all day, I would have been quite content with just peacefully watching the sunset. But my thoughts of resting were quickly interrupted when my aunt came over to show me a shot taken with her phone.

Inspired, I quickly set up my camera, which paid off with a satisfying capture of the sun gently setting behind several temple spires. We all left weary and tired, but with stunning images etched into our minds – and cameras!

02

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01 STONE SPIRES
Varying distances of temples add depth to the image

Lens	Canon EF 17-40mm f/4L USM
Exposure	1/80 sec, f/8, ISO100

02 TIMELESS
The sun sets behind a temple spire for a classic dusk shot

Lens	Canon EF 17-40mm f/4L USM
Exposure	1/800 sec, f/8, ISO800

PhotoPlus FEEDBACK

To make the most of the natural light on location, download The Photographer's Ephemeris (http://photoephemeris.com) app, which will tell you where and when the sun will fall at any time in every location across the globe

01

PROJECT INFO

Wiebke Haas

NAME: Elke Vogelsang

AGE: 43

LOCATION: Hildesheim, Germany

MISSION: To express my love for three rescue dogs who became beloved family members, life-savers, and photo models

KIT: Canon EOS 5D Mark III

www.elkevogelsang.com

Nice Nosing You

For the love of life, dogs and photography

My obsession with photography started when my husband, Carsten, fell gravely ill, on Christmas Day in 2009. The dogs started barking, whining and howling, all of a sudden.

At first I thought there was something going on outside that troubled them, but they soon started to get agitated. That's when I realized something must be seriously wrong. When I let them out of the room to see what had alarmed them, they ran to the bathroom door. We found Carsten unconscious in the bathtub. When the ambulance arrived I told the emergency doctor about a severe headache Carsten had suffered a few weeks before. The doctor looked very concerned and Carsten was rushed to hospital immediately.

They told me that they had put him into a medically induced coma and I couldn't do anything; I should go home, be patient and hope for the best. The diagnosis was a severe brain haemorrhage due to a ruptured aneurysm. The following days, weeks and months were marked by trembling uncertainty and long hours in the hospital.

After several operations and two weeks in the coma, Carsten was not perceived to be in a perilous condition any more, and they slowly woke him up, which took a few days. Contrary to the expectations of many, he had survived. However, we had no idea what damage the haemorrhage and the resulting strokes had done, but one of the first questions he could answer was the names of our dogs.

When he was finally awake, he had no short-term memory at all for several weeks. During that time of uncertainty, in order to try and retain normality as far as possible and to have a creative outlet to cope with the nerve-wracking pressure, I decided to proceed with a 'picture a day' project.

While Carsten had no short-term memory – I could tell him the same story twice within five minutes and he would have no idea I had told him moments before – I brought my pictures to the hospital and described our days without him; how the dogs were doing, what we were up to. He was happy and responsive but completely unaware of his situation. But then, after three months, Carsten started remembering things. It was one of the

> "I brought my pictures to the hospital and described our days without him; how the dogs were doing, what we were up to"

01 THE THREE WIESELBLITZES
All good dogs come in threes

Lens	Canon EF 50mm f/1.4 USM	**Exposure**	1/500 sec, f/2, ISO500

02 PEEKABOO
Loli's puppyish behaviour is contagious

Lens	Canon EF 85mm f/1.8 USM	**Exposure**	1/160 sec, f/13, ISO125

03 NOODLES AT HOME
A home without a dog is just a house

Lens	Canon EF 100mm f/2.8 Macro USM	**Exposure**	1/160 sec, f/10, ISO200

04 DID SOMEBODY SAY CHEESE?
Scout is my metropolitan girl

Lens	Canon EF 24-70mm f/2.8L USM	**Exposure**	1/2500 sec, f/5.6, ISO400

happiest days in my life. I can remember it clearly, since he greeted me with the words: "I think what happened yesterday must have been more severe than I thought."

From that day on he was able to remember some things that happened during his day and his recovery sped up enormously – better than the most positive predictions, even. We were lucky and our luck came in the form of two alert dogs, wonderful doctors, and my husband's amazing powers of recuperation.

Yes, there are those stories out there of animals saving human lives. This is ours.

Nice Nosing You by Elke Vogelsang (Hardie Grant, £14.99) is a photographic declaration of love and gratitude to three four-legged friends who changed their owners' lives for the better; a stunning collection of man's best friend photos that will move any animal lover, as well as those looking for a fun, creative outlet.

FOCUSPOINT

We'd love to hear your thoughts on the new-look mag and all things photographic! Email us at photoplus@futurenet.com

SHOT OF THE MONTH

A journey lies ahead

Places like railway stations always present us with different elements to capture, full of emotion and colour. Before I went to the station, I had in mind what kind of shot I wanted and had my Canon 600D camera settings accordingly – f/2 at 1/125 sec and ISO400. Using my EF 50mm f/1.8 II lens I set the leftmost focus point to make sure I did not miss out on a shot. After roaming around to find a suitable subject, I found a girl in a rather empty train trying to find her mother (who had gone to get some snacks). I waited for her to look my way; suddenly she stared at me with a curious look, and I took the shot.
Manish Jaisi, New Delhi, India

Every month we invite you to send in your best images, along with around 100 words on the 'story' behind each shot (include Canon DSLR and lens used, plus exposure settings). Email photoplus@futurenet.com with Shot of the Month in the subject header. Good luck!

WIN A TRAINING DVD!
Each issue, the photographer behind our Shot of the Month wins an Experience Seminars EOS training DVD. More details on EOS Training Academy and their workshops, training downloads and DVDs at www.eostrainingacademy.co.uk

Lenses SOS

In EOS SOS in issue 104, Brian Worley was requested to recommend a kit lens upgrade for a someone who had recently moved up from a Canon EOS 1000D to a 760D. In his response Brian listed various Sigma and Canon lenses up to 85mm, but when he got onto lenses of longer focal lengths he only listed one: the Canon EF-S 18-135mm STM.

My question is: why did Brian not list other brands, such as Sigma or Tamron? I use a Sigma 18-125mm and can highly recommend this lens, especially if, like me, you're on a budget. Please remember, not everyone can afford Canon lenses.
Ieuan Williams, Pembrokeshire

For reasons of space and style, we distil questions into a bite-sized quote, but the original letters are invariably much more detailed; in this case the reader, Alistair, was prepared to spend a little more for superior optical quality. The Sigma 17-50mm was also suggested along with Canon's options, and while your Sigma 18-125mm is a capable lens, it has since been discontinued.

Young DSLR user

I really enjoy your magazine and it has inspired me to develop my photography and invest in an EOS 70D. As a result, my eight-year-old son has also become extremely interested in photography and I have passed down my old Sony HX9 compact to him. He loves wildlife photography and we now spend wonderful times sharing a hobby and enjoying quality father-and-son time.

My son has become frustrated by the Sony's limitations when trying to photograph birds and other wildlife and wants to move to a DSLR as he dislikes not having a viewfinder or being able to zoom in for sharp close-ups. He's got his heart set on a Canon EOS 100D, due to its compact size and simple controls. I think he's ready to take that step as he has demonstrated that photography is a genuine, long-term hobby.

But is a DSLR appropriate – or too advanced – for an eight-year-old boy, or would you recommend, perhaps, a bridge camera? Some may say a DSLR is too expensive or complicated for one so young, but it's comparable in price with a games console, and is a long-term investment for him to learn and develop into a rewarding hobby that gets him outdoors, discovering nature while learning new photography skills.

Should youthful enthusiasm be stifled by cost or allowed to blossom?
Jason Rusbridge, Bedfordshire

We'd say that, with guidance from you – and *PhotoPlus*, of course – and starting off with the auto settings, there's no reason why your son couldn't enjoy using the 100D. But be prepared to splash out on (or share) lenses and accessories as he, and his photography, matures!

CONTACT US AT... You can write to us by emailing **photoplus@futurenet.com** using the subject Focus Point, or write to us at *Photo Plus: The Canon Magazine*, Future Publishing, The Ambury, Bath, BA1 1UA UK. We reserve the right to edit your letters and queries for clarity or brevity.

Canon ImageBrowser EX

I have recently upgraded from a 550D to the swanky new 760D. So I was intrigued by your article on page 99 of issue 104 on Canon ImageBrowser EX. This isn't on my installation disc so I went searching online, but without success. Canon's software download tab on their web page told me Canon ImageBrowser EX has been replaced, and there was no download option! So I contacted them via their website, they got back to me after a couple of weeks to say: 'Sorry this is not available for the 760D'. Not the answer I expected! Oh well, still a great camera though. I've been with you since issue one, so continue to keep up the good work.
Alan Webb, Swindon, Wiltshire

Our Canon software expert George Cairns says: "ImageBroswer EX, indeed, is no longer available for newer Canon DSLRs as EOS Utility 3 can import images directly into Digital Photo Professional 4.

However, if you enter an older camera into Canon's site (such as your 550D) then you should then be able to access a link to download ImageBroswer EX. ImageBrowser EX can't edit Raw files, but if you shoot with your 760D set to capture JPEGs then ImageBrowser should work with those format files.

But I think you'd be better off shooting in Raw and using DPP 4 – you'll get much better results and more editing control."

Does this upside-down shot get you thinking – or just look wrong?

Upside-down?

@PhotoPlusMag I notice that in the Sept 2015 issue that photo No.10 on page 26 is upside-down! :)
Andy Burrows, Twitter

The photographer chose to show his image upside down deliberately. Who thinks it's better 'right way up'?

Interactive adverts

I read the digital version of *PhotoPlus* as it's easier to handle and I don't have countless magazines cluttering up the place. But I wish that all web links, including advertisers', were 'hot links'. It would be so much easier to go straight to the website with a tap.
David Attwater, Preston

You should be able to tap all links within editorial pages of our digital editions as we add this interactivity as we design them. However, most advertisers opt only to provide a 'straight' PDF. It's their choice...

SUBSCRIBE AND SAVE! SEE PAGE 28

THE SOCIAL NETWORK

The most-popular stories found on the web this month

ISO4,000,000 anyone?

Canon's ISO 4 million camera can see in the dark. But don't get too excited, because the Canon ME20F-SH is a pro video camera that costs more than your car... http://bit.ly/4m_iso

DoF cheat sheet

The ability to control which parts of your pictures are sharp is one of the main advantages of owning a DSLR. Look at a scene with your own eyes, and everything from your feet to the horizon is usually in focus. But your pictures do not need to look like this. http://bit.ly/dof_cheat

Mark Hamblin

Water reflection techniques

How to increase the impact of your landscapes. Nothing can bring your landscape photography to life more than a sharp, stunning water reflection. In this tutorial we explain how to photograph a reflection and suggest several key techniques and tips for finding suitable subjects. http://bit.ly/lakereflections

PhotoPlus The month in numbers

600
mm – long end of Sigma's super-telephoto zoom (page 116)

60
Gn 60, the guide number of the 600EX-RT flashgun (page 120)

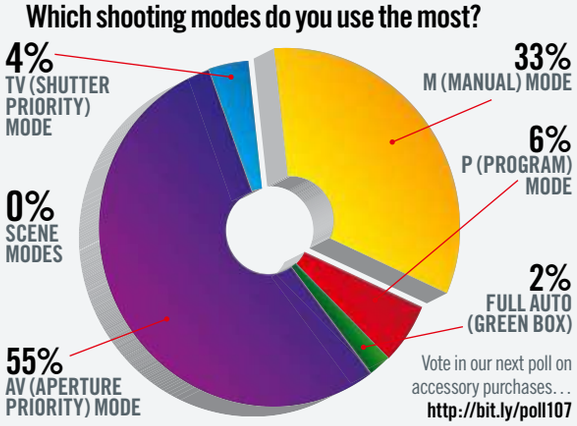
5200
5200 K – Daylight white balance colour temperature (page 90)

250
megapixels – on Canon's new APS-H-size CMOS sensor

4,000,000
number of images Howard Schatz looked through for his latest book (page 70)

16.5x23.4
inches – size of an A2 print from Epson's SureColor SC-P800 (page 110)

Which shooting modes do you use the most?



Vote in our next poll on accessory purchases... **http://bit.ly/poll107**

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MY**KIT**

Professional photographers reveal their top six tools of the trade they couldn't shoot without

"I'm often in dark venues, wet festivals or manic studios, so my kit needs to adapt to what I'm shooting"

Adam Gasson

Music photographer Adam Gasson won't consider attending any wet and muddy festivals – well, not without his coffee maker and few other essentials...

There aren't many photography genres as demanding as shooting music. I'm often working in very dark venues, wet festivals or manic studios, so my kit needs to adapt to what I'm shooting.

I'm always reaching for my f/2.8 variants of Canon's 24-70mm and 70-200mm. They're both sharp wide open, with great autofocus. When it gets really dark I've got a Canon 50mm f/1.2L, which is wonderfully sharp with an unrivalled bokeh and is perfect for low-light portraits where Speedlites aren't an option. The new Sigma 35mm f/1.4 Art lens is incredible value for money – very sharp, well built and with great AF.

When you combine these fast lenses with the high-ISO performance of the 5D Mk III, there really isn't much that can't be captured. It performs good enough at ISO6400 for pro work and, with its full-frame sensor, has the quality I need for studio shoots as well.

After I edit on location with my MacBook Pro (using Photo Mechanic and Photoshop) it's all backed up on a Cisco NSS 324 network drive, which connects to my home network and holds four hard disks, so if one fails the data isn't lost. I can access my files remotely, so I'm never too far from my images; it adds real peace of mind to my workflow.

My kit has been fine-tuned over the years to be portable enough to carry it all on my own. Between my f-stop Loka and a Storm roller case I can take enough kit to cover live shots and backstage portraits without breaking my back – or my precious gear!

WHAT DO I DO?

Adam Gasson

www.adamgasson.com

IT WAS during my studies at Cardiff University in 2003 that I realized I could combine my two passions – photography and live music. After shooting for the student paper I started getting paid work for *NME*, Carling, Red Bull and others, enabling me to turn professional in 2004. Music photography has taken me around the world (including a gig at 43,000ft aboard a Boeing Dreamliner for Virgin Atlantic) and, over a decade on, I'm still shooting for magazines, papers and brands around Europe.

IN ADAM'S BAG

01

F-stop Loka backpack

WEB: www.fstopgear.com
PRICE: £195/$250

THE Loka set me back £350 when I bought it (it's been replaced by the Loka UL since, price given above), and although it may not be cheap it's worth every penny. It has a metal internal frame, so feels really comfortable, even when walking around a festival for days. It's cavernous and comfortably takes all my camera kit, light stands and more!

02

Profoto Acute B2

WEB: www.profoto.com
PRICE: £1500/$1300

I NEED my kit to be portable but reliable and the Acute B2 fits the bill. It's powerful, up to 600Ws, and incredibly consistent. I use two packs for my portrait shoots along with Profoto light modifiers.

03

Canon EOS 5D Mk III

WEB: www.canon.co.uk
PRICE: £2249/$2499

THE EOS 5D Mark III is a bit of a jack of all trades camera, which suits my style of photography perfectly. It performs really well in low light, with both high ISO performance and good AF, has the quality you need for studio work, shoots HD video, and is weather sealed.

04

Vic Firth earplugs

WEB: www.vicfirth.com
PRICE: £20/$15

AN occupational hazard of working with musicians is loud music! Anyone shooting live music, even if it's just one gig, should wear ear protectors of some sort. I've been using Vic Firth earplugs for years and they do a great job of blocking the damaging levels of music but still allowing you to hear people talk – useful for when security are trying to warn you of an incoming crowd surfer!

05

Huawei 4G Mobile Wi-Fi

WEB: www.huawei.com
PRICE: £100/$125

QUITE often when I'm shooting live music I'll need to send the images back to a picture desk or art editor quickly, so having a reliable and fast 4G modem is a must. The Huawei models do a great job and are small enough to easily fit in your camera bag.

06

Aeropress coffee maker

WEB: www.aeropress.co.uk
PRICE: £25/$30

WHEN I'm away shooting at festivals or staying overnight on foreign trips I miss my home comforts, especially my morning coffee. The Aeropress makes a great espresso and packs down smaller than a 24-70mm lens!

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PhotoPlus

CANONSCHOOL

Your ultimate photographic reference guide to the complete Canon EOS DSLR system

DIGITAL SLR **ESSENTIALS** PAGE 90

Understanding white balance and colour temperature

In his quest to get whiter-than-white whites, Andrew explores the hot topic of colour temperature, and how the kelvin value of a light source affects the look of your images. Plus he explains how to counteract (or how to utilize) the off-white bluish or orangey hues with the white balance control, both in-camera and in photo-editing software.

WITH PhotoPlus EXPERT

ANDREW JAMES

PHOTO EXPERT

Andrew James has combined photography with writing for over 25 years. He uses a Canon 5D Mk III and 1D X, he teaches on photography holidays and workshops, and runs PhotoBuzz.

SOFTWARE **SOLUTIONS** PAGE 96

Learn to master Canon's free suite of software

This issue George shows how you can process images with the 'wrong' settings in Digital Photo Professional for the cross-processed look beloved of old-school darkroom technicians. He also looks at how to create your own picture styles with Picture Style Editor, to give your shots a unique look when processed in-camera.

WITH PhotoPlus EXPERT

GEORGE CAIRNS

EDITING EXPERT

George Cairns has been writing image-editing tutorials for *PhotoPlus* since our first very issue, back in 2007. He uses a Canon EOS 650D and 70D, and writes for the Canon Professional Network newsletter.

EOS **S.O.S** PAGE 101

Need a question answered or a problem solved?

Among the many thorny problems tackled by Brian this issue: how do you counteract 'hot' pixels; what's the best long lens for birds in flight; what's the best-value EOS for photo and video blogging; and why on earth do you still have to apply the '1.6x multiplier' to EF-S lenses when they can only be used on crop-factor Canons?

WITH PhotoPlus EXPERT

BRIAN WORLEY

CAMERA EXPERT

Brian has unrivalled EOS DSLR knowledge after working for Canon for over 15 years. He now works as a freelance photographer and photo tutor in Oxfordshire.

DIGITAL SLR ESSENTIALS

In the latest instalment of Canon School we explore the effect of white balance and colour temperature on images

PhotoPlus EXPERT

ANDREW JAMES

PHOTO EXPERT

Andrew James has combined photography with writing for over 25 years. He uses a Canon EOS 5D Mk III and 1D X, he teaches on photography holidays and workshops, runs online photo community FotoBuzz – and now is *your* tutor at Canon School.

The importance of white balance

Why you shouldn't always rely on Auto WB

White balance is easy isn't it? You just stick it onto Auto WB and let the camera take care of the rest?

Well, you can take the lazy approach, but you will get much better results if you understand a little bit more about colour temperature.

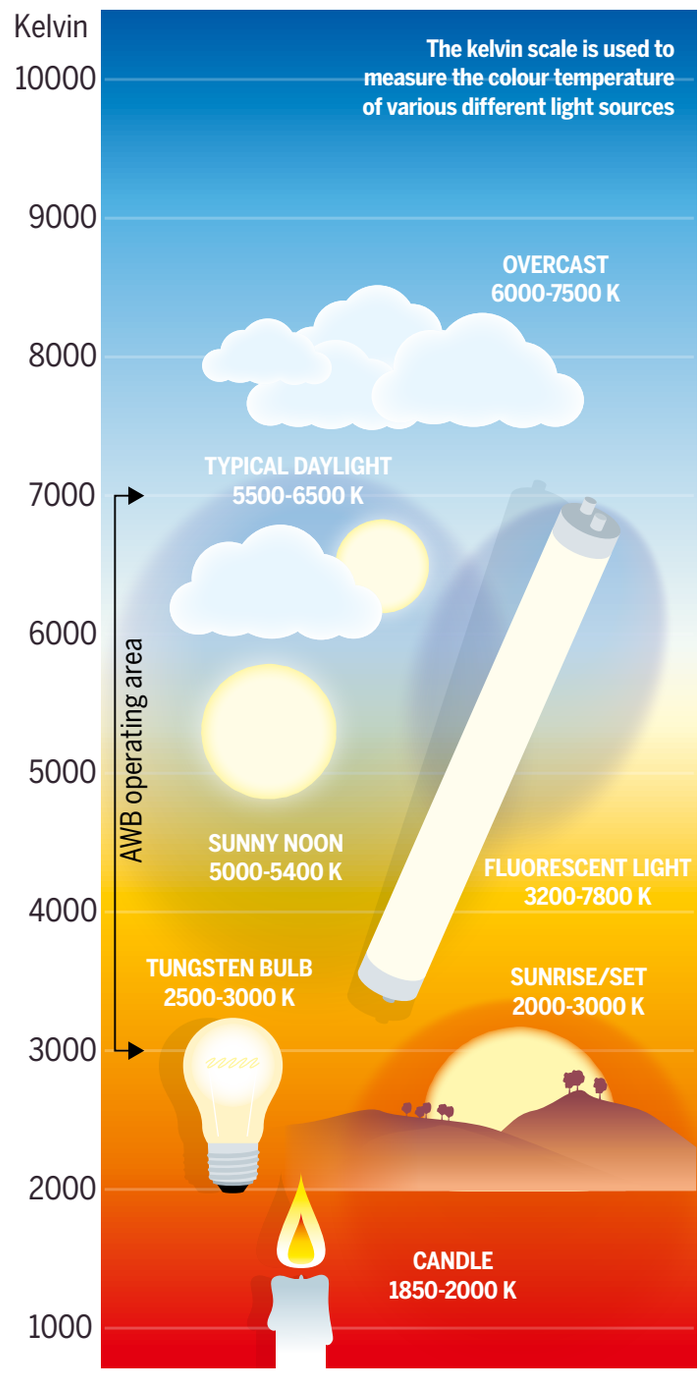
The simple truth is, white balance really is the thing that many photographers choose to ignore for 99.9% of the time; especially if they are shooting Raw because, even if they get it wrong, it's easy to correct in post-production. I confess this was also my attitude for a long time but these days I pay a little more attention to it, and this pays dividends in fewer colour casts and less laborious correcting in software.

Your Canon DSLR comes with a whole range of different white balance presets and you can create your own custom ones too, so with all this technology at our fingertips it's only right we work out how and when we should be straying beyond Auto WB.

It's also worth pointing out that post-production WB settings don't necessarily exactly match in-camera ones, unless you are using Canon's own Digital Photo Professional software. If using third-party Raw conversion software, such as Lightroom or Adobe Camera Raw, then it is the 'As Shot' setting that will show how the camera captured the WB, rather than the equivalent slider for Daylight, Shade, Tungsten and so on.

Kelvin scale

Colour temperature is measured in kelvins, named after William Kelvin, a scientist from the late 1800s who essentially created a scale of temperature that starts at absolute zero – that's -273°C. The reason that this is relevant to us is the 'temperature' of light changes depending on the source and, if it's that big light source in the sky, called the sun, it changes at different times of the day. So, to shoot a picture where the colours don't look wrong, we need to ensure our white balance is suited to the conditions. You won't notice the more subtle changes in colour temperature because the human eye is amazingly good at adjusting for it. Your camera isn't, though, which is where WB settings or adjustments come into their own.



WB PRESETS

White balance settings

What effect do those different presets have?

The effect different white balance settings have on an image largely depends on the temperature of the subject and the colours within it. This series of shots, taken in daylight on an overcast day using a Canon EOS 5D Mk III, will give you an idea of how different WB settings introduce different colour casts or, used in the right circumstances, neutralize them. Naturally, some of these temperature changes are subtler than others.

In order to manually select a white balance preset, you must be working in the Creative Zone on your EOS camera, so that's P (Program), Av (Aperture-priority), Tv (Shutter-priority) or Manual (M). In all of your camera's automatic settings, the white balance will default to Auto.

Auto WB

AWB 3000-7000 K

As you can see AWB doesn't have a fixed temperature but the camera will estimate the correct temperature within broader parameters. In this case it has chosen 5950 K. Auto white balance works best when the scene isn't dominated by one colour, but for a mixed scene like this it has performed reasonably well. There's nothing wrong with using AWB; just be aware it can get it wrong sometimes.

Shade WB

7000 K

At this white balance more warmth is added to the image and the whites have a strong yellow hue to them. It doesn't look right with this photo but if you want to give your photographs a distinctly warmer appearance then Shade is the go-to WB. Be warned, though, it can also look unnatural if overused or used in the wrong conditions.

Flash WB

Automatically set

Naturally you'd normally use Flash white balance when using a flashgun, but set it without and it tends to give a quite a neutral result. Here it has given us 5500 K – only a miniscule amount warmer than Daylight white balance and it is, at least for this scene, a reasonable choice, although Daylight WB has done a better job.

Cloudy WB

6000 K

At 6000 K, the image has been very slightly warmed up compared to AWB. It's very subtle so you may barely notice it but Cloudy white balance has given us a step up in warmth, adding a slight yellow tone to the image that doesn't work in this instance but could help to make some scenes, such as a sunset or sunrise, look more inviting.

Fluorescent WB

4000 K

Fluorescent WB is designed to balance artificial fluorescent lighting and so our outdoor shot takes on a distinct blue cast that cools the whole frame down and looks very wrong. While it would help to balance an indoor scene lit by fluorescent bulbs, fluoro lighting has varying temperatures, so it's not 100% successful in neutralizing casts.

Daylight WB

5200 K

The most obvious WB to set for this image is Daylight, and the result is slightly cooler than AWB. This certainly looks the most natural for this particular shot because the whites are, indeed, whiter! This is the go-to WB when shooting outdoors in average or typical lighting conditions. Indeed, I use this as my default white balance, rather than AWB.

Tungsten WB

3200 K

This indoor setting further cools down our daylight image with an even more pronounced blue tone. But used indoors when the scene is illuminated by a tungsten lamp it will do a very good job at neutralizing the yellow light that's being emitted. It can have its moments outdoors too – when using it will enhance the mood of an image.

Setting kelvin manually

For ultimate accuracy set your own temperature

On some EOS cameras you can also dial in you own specific kelvin temperature. This is a feature that is ignored by most photographers but it is an option if you want to be very pernickety with your white balance. For example, if you know the typical temperature of a scene then you can set that manually in kelvin to try and neutralize any potential colour cast.

For example, a candle typically emits a colour temperature of 1900 K or thereabouts. The image taken using AWB gives us a strong orangey glow and a temperature of 3200 K. But switching to K on the camera's white balance settings and simply dialing in the lowest manual kelvin setting of 2500 gives us a more neutral result.

You may prefer the warmer glow of the AWB result, but the option to set specific kelvin temperatures, and reduce or remove colour casts, is there should you need it. I find this really useful when using a filter like the Lee Big Stopper. This filter tends to add a strong blue cast to an image, but if I manually set the kelvin to 10,000 when I take the shot, it largely resolves this issue.

Daylight WB

Manual WB: 2500 K

Custom white balance

Go Custom for near-perfect results every time

Setting a Custom white balance is a bit of a faff and there are many shooting situations where it just isn't practical. However, in some situations, where you have time and lighting isn't likely to change much, then it is worth doing because it gives practically perfect results straight out of the camera.

The camera makes a series of calculations based on the scene and then works out what temperature it needs to shift in order to remove any colour cast. In other words, anything that is supposed to be white will be white and the rest of the colours should be totally natural. Here's how to set a Custom white balance:

1 Get a piece of white card (you can also use grey) or a purpose made white balance checker. Place this in the middle of your picture so that it fills a reasonable amount of the frame – it *must* fill the centre spot circle you see in the middle of the viewfinder. Now adjust your exposure to the scene and take a photo. At this stage it doesn't matter what WB you have set – you can use anything!

2 Go into your camera's menu system and find the Custom WB setting (on the 5D Mark III it's in the red Shoot2 menu). Go into it and select the image you've just taken with the white card/WB checker in the frame and press Set. The camera will ask you to confirm this is the image you want to use so hit OK. Once that's done, all you have to do is select the Custom white balance preset and take your photo – this time without the white card in the shot!

SHIFT & BRACKET WB

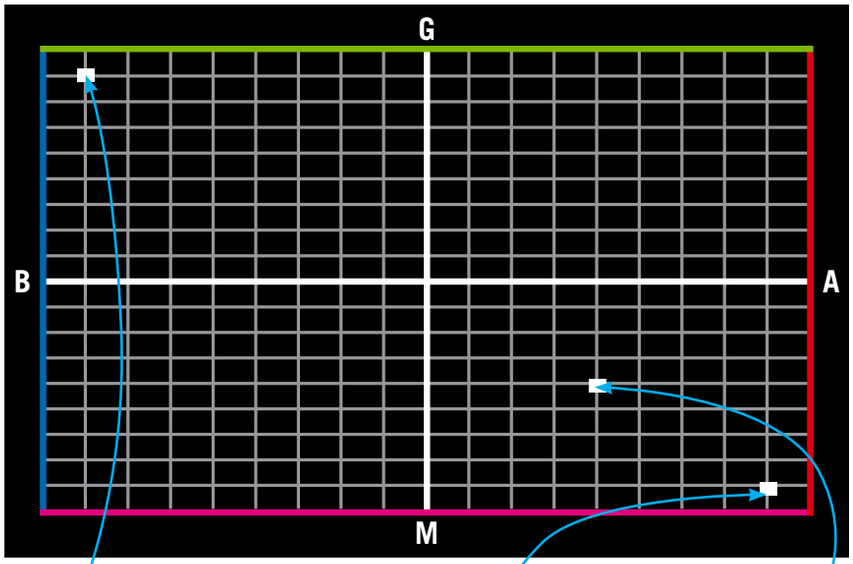
Shift your white balance

Tweak the temperature to suit the image

All current Canon DSLRs enable you to manipulate the white balance at the taking stage beyond simply dialing in a WB preset – or setting a Custom WB – with the WB Shift/Bkt feature. It allows you to manually move white balance along Blue/Amber and Green/Magenta axis.

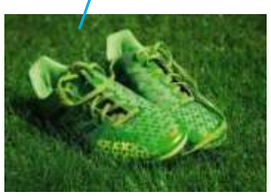
White Balance Shift can be confusing and is best used only if you are shooting in a particularly tricky WB situation. For example, if you find your image is looking too blue, you can Shift the WB in nine increments towards Amber for a warmer image. With some experimentation you should be able to get the exact WB you want.

You can move the white balance point to anywhere within the Blue, Green, Amber and Magenta range – although obviously if you go to the extremes you can expect to end up with similarly extreme results.



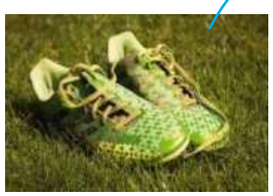
Daylight WB

This image of green boots on grass was a little too green shot using Daylight WB...



WB shift B9/G9

An extreme shift to blue/green makes things even worse, and introduces a truly horrible colour cast.



WB shift A9/M9

Manually shifting the temperature to the bottom-right has produced an overly warmed up image.

WB Shift A4/M4

But a four-step shift to Amber 4/Magenta 4 warms the image up slightly and gives a much better result.

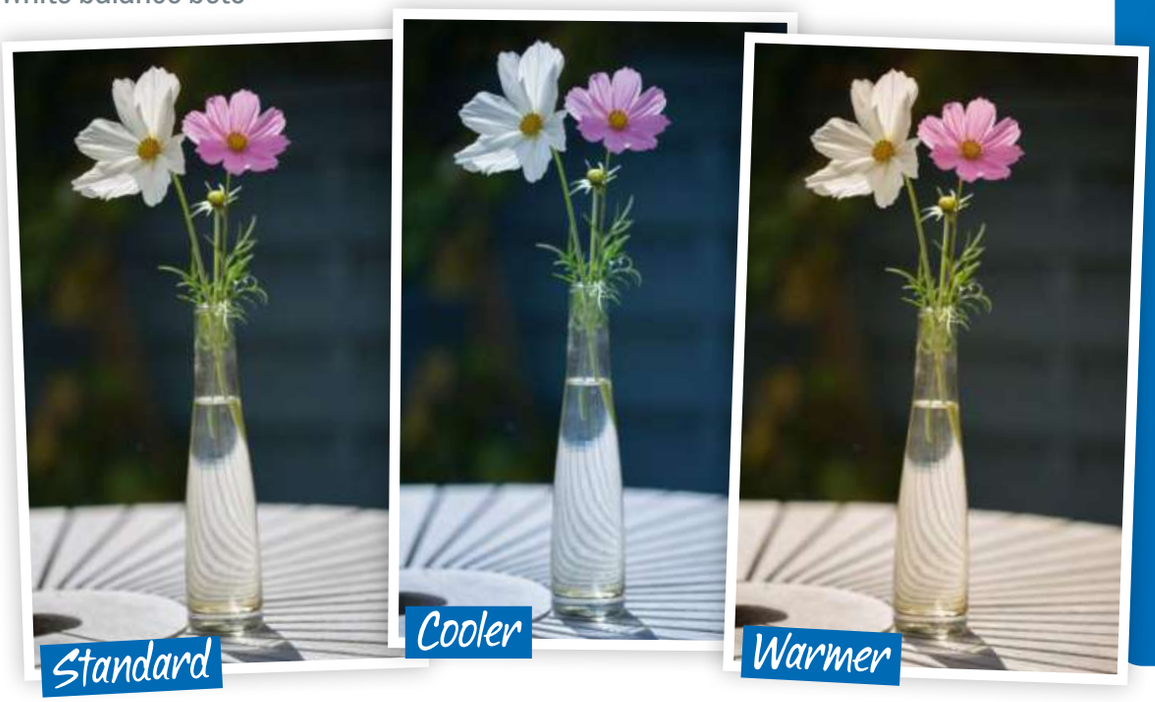
Bracketed white balance

For tricky light, hedge your white balance bets

This isn't a function I've ever found a huge amount of use for as I shoot Raw all the time, so bracketing a Raw file seems like overkill.

However, if you shoot JPEGs and don't want to be bothered with a Custom WB, then this is one answer to tricky light conditions. The image will bracket in either the Blue/Amber or Magenta/Green directions in three steps, and all three images will be created with a single press of the shutter button.

The first shot is the standard shot at the preset WB you have set. The next shot will be towards Blue or Magenta, and the final one Amber or Green. You can see this in the three example images. The standard shot was taken on Auto WB, but next two images show a distinct cooling or warming of the image.



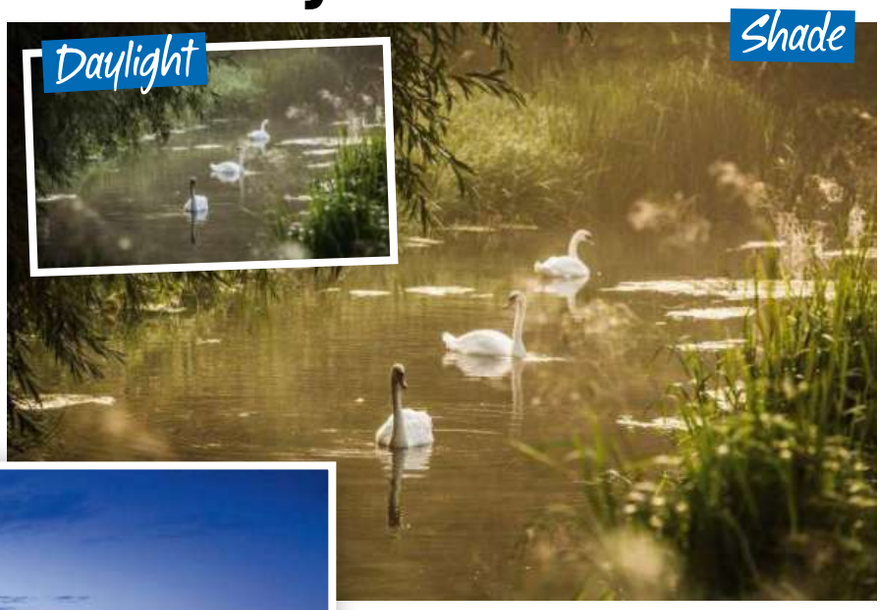
SET THE 'WRONG' WB

Use white balance creatively

Use temperature to enhance mood

So far we've mainly talked about using white balance to get rid of unwanted colour casts that make the image look unnatural. However, there is a creative side to manipulating colour temperature to give your images a new look by deliberately accentuating an 'incorrect' colour tone for added impact.

If you're shooting Raw then you can do this at the post-processing stage, but again, it's worth trying some of these techniques at the taking stage too because they are fun to do and quite satisfying when you get them right.



Inject some warmth

Using Cloudy or Shade WB will warm your image up significantly, with Shade delivering a much stronger orange cast over the image. If you do this in the middle of the day, this cast can look wrong, but try it at either ends of the day and you can certain breathe extra life into your photos. The first attempt at capturing these swans swimming on the river at first light was taken using Daylight WB. The morning light was surprisingly cool, so a switch to Shade WB really warmed the whole scene up and made it much more inviting.

Liven up landscapes

I'd hoped for some interesting colour in the sky when taking this landscape but sadly, as often happens, the faint glow of warmth on the horizon never really developed. Shooting with the white balance set to Daylight produced a really grey image that I felt didn't have any impact. Switching to Fluorescent WB gave a much moodier result. Used sparingly this trick certainly can give a drab photo a lift.

Striking silhouettes

Here's a technique to try if you ever get a chance to silhouette an animal but the conditions are, frankly, a bit dull and lacking in atmosphere. It was shown to me by wildlife pro and Canon Explorer Andy Rouse and can work a treat. Instead of just settling for that rather uninspiring sky, change WB to Tungsten. This temperature change can make a big difference as the cool colour tone and works well on the boring sky, but it only really works when shooting early or late.

WB IN POST-PRODUCTION

Fine tuning Raw files in post-production

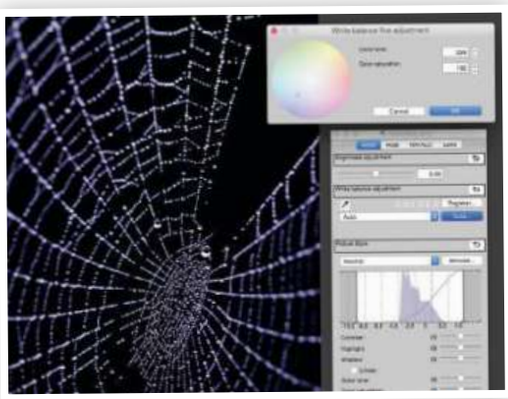
Raw allows you maximum post-shot flexibility

While this month's Canon School has highlighted many of the in-camera controls for white balance, there is always the option to fine-tune temperature in post-production, whether you use Canon's Digital Photo Professional software or a third-party one, like Lightroom.

And while I said at the start that using AWB isn't always the best option, there are occasions when you don't have time to keep checking colour temperature and need the camera to do a little bit of the work for you. AWB gives reasonable results under normal daylight conditions, although I've found that it tends to favour a slightly warmer tone. On the occasions I use it, I usually find myself tweaking an image in post-production to get more of the mood I want, or simply to neutralize that slightly warmer cast AWB tends to deliver.

To take any colour bias out I use the White Balance Dropper, touching it onto anything that looks white within the image. If I can't find a white point within the photo then I manipulate the White Balance Fine Adjustment In Digital Photo Professional, by moving the WB point around in the circle. It's important that you have a calibrated computer screen so that what you see really is what you get.

It's also easy to use the White Balance Fine Adjustment tool to boost a tone, just as I've done here with this spider's web.



DPP's White Balance Fine Adjustment tool enables you to get perfect whites under tricky conditions

Fine-tuning white balance in post-processing can have a dramatic effect

Pushing the temperature towards the cooler tones and slightly desaturating the image at the same time gets a decent result.

Remember, always relying on post-production to fix white balance mistakes caused by not paying attention at the taking stage isn't the best approach. Try to get WB correct as far as possible in-camera and then tweak or enhance your image for greater impact when using Raw conversion software.

School tip

Live View WB simulation

Get an instant assessment of white balance presets

If you want an instant check on the difference one WB setting will make over the next then simply switch your camera to Live View. Just as you get exposure simulation in Live View, WB simulation shows the effect of the WB presets so you can evaluate the look of different settings before you actually take the shot and thus decide which one is best suited to the scene. Depending on the model of EOS you have, you will either be able to access white balance in Live View via its dedicated button or, if that doesn't work, press the Quick Control button (Q) and access it from there. Each of the WB presets will be shown on the Live View screen.

When shooting in Live View you can instantly see the effect of different WB presets

SOFTWARE SOLUTIONS

Learn to master with Canon's free Raw image organizing, editing and sharing software – Digital Photo Professional 4

PhotoPlus EXPERT

GEORGE CAIRNS

IMAGING EXPERT

George Cairns has been writing image-editing tutorials for *PhotoPlus* since our first very issue, back in 2007. He uses a Canon EOS 650D and 70D, and writes for the Canon Professional Network – a newsletter for Canon pro kit users.

Get creative with colour

Tweak colour hues and mimic an analogue cross-processing technique in DPP 4…

Last month we looked at how Digital Photo Professional 4's new Adjust Image Colors palette enables you to target and tweak the saturation of individual colours. In this issue we'll go further and use the Adjust Image Colors palette to shift the hue and luminance of particular colours.

This creative approach to selective colour adjustment creates false colours that mimic the results produced using analogue darkroom techniques such as cross processing. Cross processing involved developing print film using chemicals that were designed for use with slide film, or visa versa. The results of this technique were hit-and-miss, but when it worked the creative shifts in hue could produce eye-catching images. Cross-processed blues often took on a greeny hue, for example. Shadows might feature a hint of magenta.

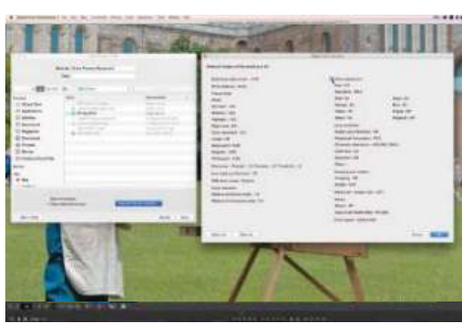
The cross-processed look is still popular as it helps give digital images a retro filmic look. It's often mimicked in TV drama shows and commercials, especially in relation to adding surreal cyan hues to skies for example. Unlike the unpredictable approach of the traditional darkroom technique, the Adjust Image Colors palette gives you the ability to replicate almost any cross-process chemical combination that you might desire – but without the smell or mess! And, thanks to the Digital Photo Professional 4's Recipe commands, you can save and store a specific cross-processed look and apply it other images in a couple of clicks, as we'll demonstrate in our step-by-step guide and video lesson.

STEP BY STEP CREATE AND APPLY RECIPES

Follow this technique to record colour adjustments that you can apply to other images

01 FIX TONAL PROBLEMS
Browse to Cross process_start.CR2. Click Edit Image. In the Basic panel set Brightness -0.83, Contrast -2, Lighten Shadow 5, Highlight -3. This reveals missing shadows and highlight detail caused by incorrect camera settings.

02 CROSS PROCESS COLOURS
Click on the Adjust Image Colors palette. Set Red Hue 14, Orange Saturation -3, Yellow Hue -6, Green Hue -11, Green Saturation 1. For the Aqua, set H to 20, S to 4 and L to -6. Drop the global saturation to 89 for less garish colours.



03 SAVE A RECIPE
Choose Edit>Save Recipe In File. Tick Specify Recipe Details, then Clear All, then the Color Adjustment box, then OK, then Save. Choose Edit>Read And Paste Recipe From File to apply the cross-process colour effect to other photos.

HOW TO… ADJUST COLOUR CREATIVELY

Discover how to use DPP 4 to change an individual colour's hue for a cross-processed look

01

BEFORE/AFTER

To see how your processing is shaping up, keep an eye on both the original and the edited versions. To do so, click this Before/After comparison layout icon. If you're working with a portrait-oriented shot, click the adjacent triangular fly-out icon and tick the Arrange Horizontally button. For landscape-oriented shots tick the Arrange Vertically button.

02

CREATE CYAN SKIES

The sky consists of a range of colours, so you need to adjust the Hue of both of the Blue and Aqua channels to tint the sky. Here an Aqua Hue value of -20 and a Blue Hue of -15 is enough to create the trademark cyan sky look. It also cross processes the painter's jeans, for a vintage analogue film vibe.

03

SATURATION

By boosting the Aqua and Blue channels' Saturation values to 4 and 7 respectively, you can make the sky stand out more in the processed version of the Raw file.

04

LUMINANCE

By dropping the value of the Aqua channel's Luminance slider to -6 you can darken the sky, which helps make the clouds pop out in contrast.

05

WARMER COLOURS

Grass and vegetation tends to feature an abundance of yellow, so by shifting the Yellow channel's Hue to -6 we can add a warmer tint to the grass. This wash of sepia (with its vintage photo connotations) helps the processed picture evoke a nostalgic feeling.

06

REVERT

Experiment with your HSL (Hue, Saturation, Luminance) settings to explore different cross-processed looks. You can click the Revert icon by each colour channel to restore the photo's originally captured colours, or click this icon to revert all the adjusted colours to their default look.

07

GLOBAL ADJUSTMENTS

This pair of sliders adjusts the Hue and Saturation of all of the shot's colours at the same time. We've dropped the global Saturation to give the shot's colours a 'faded over time' look that complements the vintage effect produced by the cross-processed colours.

08

FINE-TUNE

You can tweak the adjustments produced by a channel's sliders by tapping these up and down arrows. The results are very subtle and slow to apply, so you'll probably never use this particular feature. You can also type numerical values into the adjacent boxes as an alternative to dragging the sliders.

JARGON BUSTER

NON-DESTRUCTIVE
Because you're editing Raw files, you can reset the images to their original look at any time. You can't 'destroy' (or lose) the original settings.

LUMINANCE
The L sliders in the Adjust Image Colors palette alter the individual luminance of the eight colours to change their contrast.

Can I use DPP 4?

DPP 4 is now available to all current Canon EOS DSLR owners – 1200D, 100D, 700D, 750D, 760D, 70D, 6D, 7D Mk II, 5D Mk III, 5DS/R and 1D X, plus 1D Mk IV, 5D Mk II, 7D and 60D. Download it from **http://bit.ly/get_dpp** but you'll need your serial number. Check the website to see if your DSLR is compatible with DPP 4.

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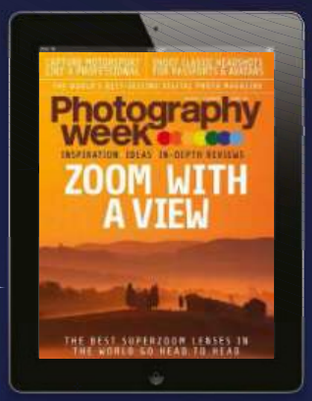

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PICTURE STYLE EDITOR

Adjust image-processing properties

Use Canon's free Picture Style Editor to experiment with picture style settings in a few quick clicks

When your Canon captures a JPEG image it uses the specified picture style to adjust properties such as Sharpness, Contrast, Saturation and Color Tone.

The Landscape picture style boosts the saturation of the sky and scenery, for example, giving scenic shots impact. Some picture styles, such as Neutral or Faithful, avoid sharpening or over-saturating, creating a shot with a flat contrast – this is actually a sensible option as you're less likely to blow out highlights or clip shadows. You can then use software to add the amount of sharpening, contrast and saturation that you desire.

Canon also provides free Picture Stye Editor software to run on your Mac or PC. If you shoot in Raw format you can open your image in the Picture Style Editor and adjust its Sharpness, Contrast, Saturation and Colour Tone much more easily than by fiddling around in your camera's menu to create a 'User Defined Picture Style'. You can also tweak the HSL values of six colour gamuts and perform selective colour adjustments. This provides an easy way to boost the colour saturation of flowers and grass without creating over-saturated and unprintable skin tones, as we demonstrate in our four-step walkthrough.

01 BASE STYLE
Experiment with the looks produced by the preset picture styles in the Basic panel's drop-down menu.

02 SLIDERS
Fine-tune the look of the base picture style with Sharpness, Contrast, Color Saturation and Color Tone sliders.

03 CURVES
Plot points, drag to lighten/darken shadows, midtones or highlights.

04 COLOUR BOOST
We've boosted clothes and flowers without over-saturating skin tones.

STEP BY STEP MAKE SELECTIVE COLOUR ADJUSTMENTS

Boost the saturation of specific colours, adjust contrast and sharpness, and save your custom picture style

01 BASIC ADJUSTMENTS
Drag Picture Style_start.CR2 into Picture Style Editor. Set the Base drop-down to Landscape. Set Sharpness Gain to 4. Set Contrast to 1.

02 IMPROVE SKIN TONES
Click the Six Color-Axes tab. Click the R (Red) button and drag the S (Saturation) slider down to -25 for less vibrant skin tones.

03 BOOST COLOURS
Click the Specific Colors tab. Click the eyedropper on the jeans. Drag S to 50 for vibrant blues. Boost the purple flowers using this technique.

04 SAVE CUSTOM STYLE
Click the floppy disk icon and save your custom picture style. You can then click the Load icon and apply its settings to other photos in the future.

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PhotoPlus EXPERT

BRIAN WORLEY

CANON PRO

Brian is a freelance photographer and photo tutor, based in Oxfordshire. He has unrivalled EOS DSLR knowledge, after working for Canon for over 15 years, and is on hand to answer all your EOS and photographic queries

"I own a Canon 500D, and recently noticed that long-exposure night shots show several hot pixels. Is there any way that these can be fixed or removed?"

Jamie Macquire, UK

BRIAN SAYS... Hot pixels are caused by higher current levels on a specific pixel and are unique to each sensor. When making long exposures of more than one second there is a build up of heat in the sensor that accentuates the visibility of the hot pixel.

The 500D long exposure noise reduction is found in the Custom Functions – C.Fn 4 to be precise. There are three options, 0: Off, 1: Auto, 2: On. With C.Fn 4 set to 2: On the camera makes a second dark frame of the same duration as your picture that is used by the camera to map out the noise. So if you make a five-minute exposure the camera makes a further five-minute dark frame and does some processing before writing the file.

If C.Fn 4 is set to 1: Auto the camera will determine if the dark frame technique is needed for exposures longer than one second.

C.Fn 4 reduces the visibility of noise and hot pixels with long exposures, but the shot takes twice as long to be recorded

If you want to capture birds in flight when handholding your camera then it's best to choose a lens with built-in image stabilization

"Should I buy the Canon EF 100-400mm f/4.5-5.6L IS USM or EF 400mm f/5.6L USM for photographing wildlife and birds in flight with my EOS 70D?"

Carol Ehrlich, UK

BRIAN SAYS... The Canon EF 100-400mm f/4.5-6.6L IS USM exists in two variants; an older version that has a push-pull 'trombone' type zoom mechanism, and a new Mk II model, which sports a more conventional twist-the-ring type zoom.

The Canon EF 400mm f/5.6L USM is a well respected and very sharp lens; it is also a little lighter than either the older or newer 100-400mm zooms. However, it does not have built-in optical stabilization. For your birds-in-flight photography I'm assuming you will handhold the lens, or use a gimbal head, so in my opinion a lens with IS would be the best choice.

While the 100-400mm Mk II lens is more expensive and heavier than the original version, it is much better in terms of optical performance and the Image Stabilizer is much more capable, too.

What DSLR camera would be good for a food blogger moving up from a camera phone? I want to make videos too, but don't have much to spend.

Deborah Chester, St. Helens

BRIAN SAYS... All the current EOS cameras will capture HD video as well as shoot stills, so the entry-level EOS 1200D might be an obvious budget choice. I suggest you spend a little extra on the EOS 100D to gain a mic input. This will let you record clearer speech with your videos using an external tie-clip microphone. If you shoot videos of yourself or shoot from odd-angles then the vari-angle LCD screen on the older EOS 700D is really valuable for a bit more money. Choose a lens with the smooth-focusing STM AF motor, like the EF-S 18-55mm f/3.5-5.6 IS STM, to go with any of these cameras.

EOS cameras are ideal for food bloggers; choose the EOS 100D, above the 1200D, for its external mic input

The focal length multiplier simply indicates the focal length you'd need for the same angle of view on a full-frame camera

Why does an EF-S lens have the same crop factor and focal length multiplier as a full-frame EF lens?

Norman Hill, Southampton

BRIAN SAYS... Focal length is the distance from a lens's optical centre (where light rays converge) to the imaging sensor when focused at infinity – this doesn't change whether the lens is mounted on a full-frame or crop-sensor camera. What does change is the angle of view – a 50mm lens has an angle of view of 46° on a full-frame sensor, reduced to around 30° on an APS-C size sensor. For the same 30° angle of view on a full-frame sensor you'd need to use an 80mm lens, hence the 1.6x multiplier. Focal length is a fixed physical specification, it's the APS-C camera's sensor that affects crop factor.

QUICK FIXES

What's the best way to clean inside the viewfinder of my EOS 700D?

Kev Kenney, UK

BRIAN SAYS... If what you see isn't affecting your pictures then it's best not to try. If the debris is on the focusing screen then it's best left alone as focusing screens are difficult to clean. Use only a rocket blower to move lose dust. Avoid rubbing the reflex mirror, too.

My 700D focus confirmation light in the viewfinder no longer lights up, why?

John Mortimer, Staines

BRIAN SAYS... I suspect you have changed the focusing mode to AI Servo; the AF confirmation light only lights continuously when you use One-Shot AF or AI Focus modes. Alternatively the AF/MF switch on the side of your lens has been moved to manual focus.

Why do I see red squares over parts of the image when reviewing shots on my rear LCD?

Chris Lancaster, Australia

BRIAN SAYS... You have set the camera to display the AF points in playback. In the blue menu tabs locate 'AF Point Disp.' and set it to disable. The AF frames will no longer be shown. The AF squares won't appear in photos, regardless of this setting.

DPP 3 and DPP 4 will each save their own independent settings inside a single Raw file

I used to use DPP 3, can I upgrade to DPP 4 now it supports my camera?

Rob Calbrade, Greater Manchester

BRIAN SAYS... DPP 3 is slowly being phased out as more older cameras are supported in DPP 4. However, DPP 4 won't read any changes you made to the Raw image in DPP3; you need to re-develop it using DPP 4. I have found that it is possible to process a file in DPP 3, then open the same Raw in DPP 4 and develop it completely differently; both DPP 3 and DPP 4 develop settings are stored separately in the original file.

ISO Safety Shift works to avoid underexposed pictures and is useful paired with Tv mode

I shoot sports using Tv, mode but some pictures are underexposed, how can I avoid this?

Keith Stanfield, Ireland

BRIAN SAYS... Light level drops and, due to the pace of the action, you don't notice that the aperture in the viewfinder is flashing to warn you of underexposure. On the EOS 70D, and other advanced models, help is at hand in the shape of a Safety Shift custom function that either lowers the shutter speed or, more helpfully, changes the ISO to achieve a correct exposure.

TETHERED SHOOTING

Ask Brian! Confounded by your Canon? Drop Brian an email at **EOSSOS@futurenet.com**

Tethered shooting is easy with Canon's free EOS Utility software

Shoot from the laptop

Connect your camera to your computer and discover the advantages of tethered shooting

Studio photographers often connect their Canon DSLRs to a computer so they and their clients can see each picture as it's captured on a larger screen. Viewing the image on a computer makes it possible to zoom in and check for critical focus much more easily than on the camera's teeny rear LCD, and often you will notice small details about the scene that can be easily fixed before taking another shot, rather than in laborious post-production later.

With your EOS tethered to a computer there are two possibilities for control; the camera's regular buttons and dials, or the settings can be changed from the computer – and even the shutter can be released remotely.

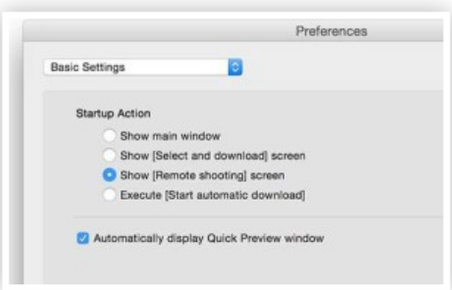
For the best transfer speed, tethering normally uses a USB connection. Some cameras, such as the EOS 6D and 70D, can also tether over Wi-Fi. The EOS-1D X will also tether using its gigabit LAN connection.

Canon's free EOS Utility software's used for tethered shooting. Once installed it should configure itself as the default application to run when the camera is connected and switched on. I suggest you set the preferences so that it starts in Remote Shooting mode.

The key with tethering, as opposed to connecting to the camera with an app on your smartphone or tablet, is that images are automatically transferred as you shoot. EOS Utility allows the camera to be set to shoot Raw+JPEG but only transfer the JPEG, for the shortest delay between shutter release and the picture on screen.

You can change shutter speed, aperture, ISO, white balance and many other settings via EOS Utility, and even operate Live View and focus the lens remotely. It can also sync the camera's clock to match the computer's so that images are accurately timestamped.

Reliability of connection is the most important thing. Sometimes cables come loose or the wireless signal drops. EOS Utility always seems to recover connections better than other software solutions. Beware – once you use tethered shooting it's hard to stop!



It's best to set the preferences to configure EOS Utility to start tethered shooting whenever your camera is connected to the computer

How do I set the camera for the best exposure when the focus point and area where I want to meter aren't the same?

Dean Raath, South Africa

BRIAN SAYS... Exposing for one part of the scene and focusing in a different location is indeed possible, but you will need to use the right metering pattern combined with auto exposure lock (AE-Lock).

EOS cameras have up to four metering patterns; Evaluative, Spot, Partial and Centre-weighted. Evaluative is the default mode and behaves differently to the other options. When the shutter is half-pressed focus starts and, if you are using One-Shot AF mode, the exposure is locked too. There's no automatic lock for the other three metering patterns. Evaluative metering tries to be intelligent about metering for the scene, and the selected subject, so the active AF point has some influence on the result.

This is the reason for the AE-Lock button, labelled '*'. Pressing AE-Lock locks the exposure, regardless of the selected metering pattern, but it's essential to know where the measurement is being taken from; with Spot, Partial or Centre-weighted metering it's simply taken from an increasingly larger central portion of the frame. Compose the shot with the centre of the frame covering a midtoned section of your scene, press the AE-Lock button to lock the exposure, then recompose the scene with the focus point where you choose and the exposure will not change. Try metering from green grass or grey tarmac as they are often good approximations of midtone subjects if they are in the same light as your subject.

AE-Lock is active for around four seconds if no other buttons are pressed, and you will see a '*' symbol in the viewfinder while the AE Lock is active.

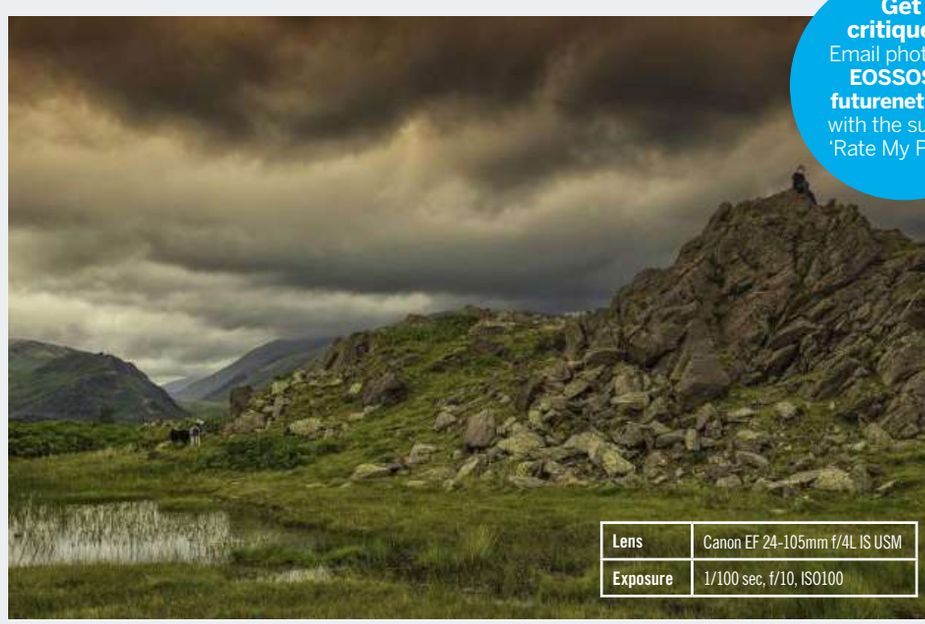
AE Lock is most often used with Spot, Partial or Centre-weighted metering modes

Use AE Lock to lock the exposure, then recompose as needed

RATE MY PHOTO

Josh on a Rock by Gerard Deehan

GERARD SAYS... This image was taken while walking between Grassmere and the Langdales in Cumbria with my two sons. I had my EOS 6D and tripod but don't like getting my sons to pose, so the shot was taken handheld. I took several pictures of my sons looking towards the stormy skies on the top of the rock, but from a closer angle. Each time I walk around this area it presents different views, with the weather, time of day and, of course, the seasons. I used Lightroom to adjust highlights and curves, and Color Efex Pro to make the sky slightly moodier.



Lens	Canon EF 24-105mm f/4L IS USM
Exposure	1/100 sec, f/10, ISO100

Get critiqued! Email photos to **EOSSOS@futurenet.com** with the subject 'Rate My Photo'

BRIAN SAYS... When I saw this image the thing that drew me to it was the clouds; they really look stormy and foreboding. If I didn't know they'd been adjusted in post-production I would have thought it was an ND grad on the lens. On closer inspection I saw Gerard's son atop the rocks, but wished he'd been a little larger in the frame and ideally facing into the picture and towards the sheep in the lower-left corner, rather than out of the frame.

I can't help but wonder if making two pictures from this one shot would be a better option; a close-up portrait image of the boy on the rocks from the right third, and a moody landscape from the left two thirds.

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Angela Nicholson
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Welcome...

FLASHGUNS aren't just for low light; they're incredibly useful in bright, sunny conditions for blasting out shadows and putting you in control of exposure. But, as we head into the darker days of autumn, we naturally look for sources of light. That's why in this issue's Super Test we review eight of the best flashguns around, with automated options to keep things simple, as well as full manual control when you want to be in charge. If you're nervous about using flash, maybe this is the season you could tackle it; it really can be the difference between so-so and award-winning shots. (Canon was unable to supply the new Speedlite 430EX III-RT in time, but we'll give it the solo test treatment next issue.)

We've also tested the new Sigma 150-600mm f/5-6.3 DG OS HSM S lens that proves buying third-party lenses doesn't mean compromising. And, with an effective focal length of 240-960mm on APS-C-format EOS SLRs, this Sigma is attracting a lot of attention – especially from keen wildlife and aviation amateur photographers.

PAGE 120 E-TTL FLASHGUNS

PAGE 116 SIGMA 150-600mm f/5-6.3 S

PAGE 114 CAMERA DAYPACKS

TESTS & AWARDS

WHEN IT comes to testing Canon DSLRs, lenses, photo gear and services in *PhotoPlus*, we tell it like it is. We're 100% independent and we use our in-depth lab tests to find out how kit really performs and compares. Here are our main awards...

BEST VALUE Photo Plus WINNER

Buy for the best combination of quality and value

BEST ON TEST Photo Plus AWARD

Only the best of best win our coveted award

01

02

GEAR UPDATE

Our round-up of the latest digital photography must-haves

04

03

06

01 RØDE Link Filmmaker Kit

Pro-level wireless microphone for your SLR

£289/$399

www.rode.com

RØDE is known for its high-quality audio gear and recently has been putting serious effort into creating audio solutions for SLR filmmakers. The RØDE Link is a wireless mic system with transmitter and separate receiver that slots into your camera's hotshoe and links into the camera's audio port. Setup and use is incredibly easy and the audio quality is superb. If you're looking for a quality wireless mic kit the price of the Link makes it hard to beat.

02 Epson SureColor SC-P800

Go XXL with your printing and make the most of all those megapixels

£975/$1195

www.epson.co.uk

EPSON'S new A2 photo inkjet printer uses nine new-generation UltraChrome HD pigment inks, adds Wi-Fi and mobile/cloud printing services, and touts a full-colour touchscreen. You can go even larger than 16.5x23.4-inch A2 prints by adding the optional roll feeder, for an extra £195/$200. Large-capacity 80ml cartridges enable relatively inexpensive running costs, and print speed is quick even at the maximum quality setting (13 minutes for borderless A2 print). Colour accuracy is excellent in standard settings, and strikingly vibrant in 'photo enhance' mode. Print quality is superb for both colour and monochrome prints, on a very wide and diverse range of media.

03 Tamron SP 35mm f/1.8 Di VC USD

Fast, wide, standard and stabilized prime

£TBA/$600

www.tamron.co.uk

WE'VE been hugely impressed by some of Tamron's up-market zoom lenses, like the SP 24-70mm f/2.8 Di VC USD. Strangely though, apart from macro lenses, the manufacturer has never made prime lenses for the digital era. This new 35mm optic comes out fighting, and should prove ideal as a wide-angle lens for full-frame cameras, or as a standard prime for APS-C format bodies. It shares the same advanced features as the equally new Tamron 45mm and is a very manageable size and weight, at 80x81mm and 480g.

04 Tamron SP 45mm f/1.8 Di VC USD

Like the new SP 35mm, it's feature-packed

£TBA/$600

www.tamron.co.uk

THIS has all the same major attractions as Tamron's newly announced 35mm lens, also featured. Both combine a fast f/1.8 widest aperture with highly effective VC (Vibration Compensation) stabilization. Ring-type USD (UltraSonic Drive) autofocus comes with full-time manual override, and top-quality glass elements are combined with eBAND (Extended Bandwidth and Angular-Dependency) and BBAR (Broad-Band Anti-Reflection) coatings to reduce ghosting and flare. The weather-sealed construction also features a fluorine coating on the front element to repel water and grime.

05 Venus Laowa 60mm f/2.8 2:1 Ultra-Macro

Go under the magnifying glass

£300/$380

www.venuslens.net

THERE are plenty of macro lenses that offer a full 1.0x or 1:1 reproduction ratio, and then there's the Canon MP-E 65mm that's purely for close-up photography and offers up to 5x magnification for capturing near-microscopic detail. This Chinese lens uniquely has an extra-large 2.0x or 2:1 reproduction ratio at its shortest focus distance, while also being able to focus all the way to infinity. It's purely manual, however, so there's no autofocus and you can't set the aperture from the camera.

06 Wacom Cintiq 13HD

A graphics tablet with a built-in screen

£649/$799

www.wacom.com

THE Cintiq 13HD is the smallest of the Wacom screen tablets and therefore the most affordable. The 13in screen is best set up to work alongside another monitor to display the tools while the Cintiq can be used for the image you want to work on. The screen is touch sensitive and you can interact with the image displayed using the special pen tool. Once you're used to using the monitor and pen the added accuracy and pressure-sensitive touch makes enhancing and manipulating your images through Photoshop incredibly easy. It's a great addition to your digital darkroom.

07 Canon EF 35mm f/1.4L II USM

Blue is the colour for this world-first lens

£1800/$1800

www.canon.co.uk

THE Mk II edition of Canon's best 35mm reportage lens is bigger, better and features 'BR' (Blue Spectrum Refractive) optics, based on a new organic optical material. This refracts short-wavelength blue light more effectively than existing technologies, keeping chromatic aberrations to an absolute minimum. It's better weather-sealed than the original lens, and has a more rounded diaphragm based on nine, rather than eight, blades. Check out our full test next issue.

08 Pixel X800C

High-powered TTL flash with a low price

£109/$169

www.pixelhk.com

THERE are plenty of cheap flashguns on the market but few feature E-TTL as well as full manual modes. The Pixel X800 boasts a huge guide number of 60 (ISO100 at 200mm) and is straightforward to operate, with plenty of buttons and a clear LCD. This flash offers exceptional power and features for the price.

09 ViewSonic VP2780-4K

See your images in ultra high resolution

£720/$800

www.viewsoniceurope.com

THIS 27-inch monitor has been designed with photographers in mind and supports both sRGB and Adobe RGB colour. The 3840x2160 4K UHD resolution and 10-bit colour highlights colour and detail beautifully, enabling you to closely check image quality before printing files.

10 ZKIN Canopus

Super-stylish messenger bag

£135/$210

www.bagwise.com

MADE from canvas and leather, the stylish Canopus is a high-quality messenger bag. Flip open the magnetic button clasps and the inner section reveals a velcro-divided three-section inner and laptop slot. Inside well-padded compartments you can fit a DSLR with mid-range zoom plus one or two lenses and a flash, leaving room for personal items. There's a zipped pocket on the front and velcro pocket on the back for memory cards and small accessories.

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EF-S 24mm f/2.8 STM	£129.00	300mm f/4.0L USM IS	£959.00	24-70mm f/4.0L IS USM	£699.00
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50mm f/1.4 USM	£237.00	TSE 24mm f/3.5L II	£1,479.00	70-200mm f/4.0L USM	£459.00
50mm f/1.8 II	£88.00	TSE 45mm f/2.8	£1,099.00	70-300mm f/4.0-5.6 IS	£368.00
50mm f/1.8 STM	£107.00	TSE 90mm f/2.8	£1,124.00	70-300mm f/4.0-5.6L IS USM	£904.00
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Daypacks for your Canon DSLR

With space to stash your camera kit and daily essentials, these backpacks have it all

It's not as if there's a shortage of ways you can carry your Canon kit, but whether it be a holster, shoulder bag, or full-on camera backpack, most aren't cut out for storing everyday gear, like a raincoat or your lunch. That's where a daypack comes into its own, offering a conventional camera compartment paired with a large open space for a mac, Big Mac, or even a MacBook, as many daypacks can also swallow a full-size laptop.

Of course, with only around half the bag set out for camera kit, you'll need to be selective with your choice of lenses. Fat full-frame camera bodies will also be a squeeze, but outside there'll usually be handy mounting points for a tripod, plus pockets for small accessories.

And while camera storage may be slightly compromised, comfort certainly isn't. All six bags boast thickly-padded shoulder straps and most have equally comfortable back padding. Some hiker-focused designs feature a suspended back panel to create a cooling air gap, so longer walks are less sticky.

FIVE THINGS TO LOOK OUT FOR

They may all be combined camera and gear backpacks, but finding the one that's right for you can be tricky...

01 Location
Consider where you'll be doing most of your shooting, as a sleek daypack with a laptop slot isn't ideal on a long trek, while a hiking backpack doesn't really belong in the city.

02 Customization
Most daypacks come with customizable dividers, but a removable camera insert is better still, as this enables many bags to be reconfigured into a normal backpack when you're not out shooting.

03 Funky frills
Just because these bags have split personalities doesn't mean they skimp on the extras. Laptop slots, tripod holders, accessory pockets and hip belts are all among the available options.

04 Quick-fire
When you need to snap a shot in a hurry, a daypack that lets you access your Canon on the go without stopping is a must.

05 Every cloud
Get caught out in a shower and you'll want to your gear to stay dry, so it's worth finding a daypack that comes with a separate rain cover.

Lowepro Fastpack 250 AW II

£120/$130 www.lowepro.co.uk ★★★★★

INSIDE THE subtly styled Fastpack there's a classic split layout, with a camera section in the lower half that'll swallow a 5DS and two or three relatively small lenses. At the back you'll find a slot for a 15in laptop and a tablet, but this slightly restricts the depth of the camera compartment and upper space for your daily essentials. At least your tripod can accompany you in a side pocket that doubles as a bottle holder.

Getting at your Canon on the go is easy, thanks to a side-opening flap that can also be peeled back further to access the front compartments.

Padded mesh back panels, thick shoulder straps and a removable hip belt all keep you comfortable, while a rain cover gives your gear added protection.

PhotoPlus VERDICT

PROS: Versatile storage space; easy to access; weather protection
CONS: Not the best for long and larger lenses, but few daypacks are
WE SAY: A great daypack, but the Nest bag offers slightly better value

National Geographic Walkabout Medium Backpack

£140/not available in US www.geographicbags.co.uk ★★★☆☆

FANCY A bag with traditional styling? National Geographic's retro-themed Walkabout could be just the ticket, plus its squarer design maximizes storage space in the upper daypack portion.

You'll have room for a 15.4in laptop, and typically your Canon is stowed in the lower half, along with up to four extra lenses. However, as with many camera daypacks, the Walkabout's somewhat shallow depth makes it best suited to shorter EF-S optics, and the front-opening design of the camera compartment rules out access on the move.

On the upside, you get a generous amount of accessory storage and scope for carrying two tripods. It also coverts into a regular backpack, and has a strap to secure it to a rolling suitcase.

PhotoPlus VERDICT

PROS: Practical layout with good storage; some handy features
CONS: Classic design won't appeal to all tastes; no on-the-go access
WE SAY: Capable, but not the best if you need your Canon gear quickly

Manfrotto Advanced Active Backpack II

£90/$95 www.manfrotto.co.uk

HERE'S AN understated bag that won't look out of place if you're amongst city slickers. There's plenty of space up top for general gear, and you can also pack in a 17in laptop and attach a tripod on the side. Your Canon gets a home in the bottom compartment, which has room for up to four lenses alongside, but these better be small EF-S optics, as the bag's shallow depth means the camera compartment isn't the most versatile shape.

Accessing the camera section is also a mixed bag; while the inner padded segment pivots out usefully, it's not designed to be opened on the go. The divider insert is removable, though, so you could turn the whole bag into a regular backpack.

PhotoPlus VERDICT

PROS: Nails the basics with smart styling and decent storage space
CONS: No access whilst moving; shallow camera compartment
WE SAY: Gets most things right, if only there was on-the-go access

Manfrotto Off road Hiker 30L

£170/$200 www.manfrotto.co.uk

GETTING GREAT shots can mean getting off the beaten track, and it's here that the Hiker really excels. Highly adjustable waist straps and an excellent hip belt with handy accessory pockets make it particularly comfortable on long hikes, while an extra chest strap cradles your Canon when it's hung around your neck to help take some of the weight. A suspended mesh panel keeps your back cool but it does restrict space in the camera compartment, so you'll only squeeze in your Canon with an attached lens, plus one extra.

There is convenient side access though, and the camera divider insert will come out to convert the bag into a full hiking backpack. But even with this in place, there's still bags of room for travelling gear above it.

PhotoPlus VERDICT

PROS: Most comfortable daypack here; packed with nifty features
CONS: Not much space for your Canon; relatively high price
WE SAY: Best choice for hard-core hiking, if you don't need much kit

Nest Athena A70

£85/not available in US www.nest-style.com

THE ATHENA A70 appears much like the other bags here, with a normal split-level design and a laptop slot at the back. But it's the details that set this backpack apart. Its compact-yet-boxy shape gives the most practical carrying capacity, while the discreet design is easy on the eye, whether you choose it in black or brown.

However, the Athena's real trump card is camera access, as openings on both sides enable you to easily whip out your Canon. What's more, with some creative restructuring of the internal dividers, It's even possible to squeeze in two bodies with small attached lenses and access one from each side.

First-class material and construction quality add further appeal, yet Nest has managed to keep the bag nice and light.

PhotoPlus VERDICT

PROS: Great on-the-go access boosts this already versatile design
CONS: It can't quite boast the largest camera compartment here
WE SAY: Superb all-round daypack that offers terrific value for money

Vanguard Sedona 51

£125/$150 www.vanguardworld.co.uk

IF YOU'RE after the Manfrotto Hiker's go-anywhere ability but need more camera space, then this bag shapes up well. It'll take a full-frame Canon with lens attached, plus a couple of extra lenses and accessories. Use the hip belt and the bag can be accessed on the go via the back panel opening, which also enhances security.

But while your gear may be thief-protected, the exceptionally lightweight construction doesn't exude robustness. Thankfully there's no shortage of back and shoulder padding, so your Canon won't become a burden on hikes.

There are some clever features as well, like a front strap to secure a monopod or hiking pole, plus a special divider between the daypack and camera sections that allows a long lens to pass through.

PhotoPlus VERDICT

PROS: Go-anywhere design and features, plus it'll carry plenty of kit
CONS: Super-light construction compromises gear protection
WE SAY: Avoid rough and tumble and the Sedona works well on a trail

SIGMA 150-600mm f/5-6.3 DG OS HSM S

You'll be in for a long stretch with Sigma's latest 'Sport' lens

However much telephoto reach you've got on tap, you can often want that little bit more. You'll particularly feel the pinch if you've upgraded from an APS-C format body, like the 70D or 7D Mk II, to a full-frame camera, like the 6D or 5D Mk III, losing the crop factor along the way. Powerful telephoto reach is restored by this Sigma lens, which delivers a huge 150-600mm telephoto zoom range on full-frame cameras, and stretches to an enormous 'effective' range of 240-960mm on APS-C bodies.

As one of Sigma's 'Sport' lenses, the design aims for impressive build quality and performance. The company has also launched a 'Contemporary' 150-600mm, which is cheaper, smaller and lighter in weight, but the 'S' edition is the premium one, with better-quality glass and more comprehensive weather-seals.

A bit of a beast, it measures 121x290mm at its shortest zoom setting, and physically extends by a further 90mm as you zoom to the longest focal length. The strong, metal lens hood adds another 90mm, so the lens protrudes 470mm (nearly half a metre) from the camera body when used at full stretch. It's pretty weighty too, at 2.86kg, but comes with an excellent tripod foot, plus a carrying strap that attaches to lugs on the outer lens barrel.

Tipping the scales at close to 3kg and measuring almost half a metre when extended, it's no lightweight...

The lens boasts weather seals, high-spec optics and upmarket build quality

Handling is excellent for such a big lens. The zoom and focus rings operate extremely smoothly and all the various switches have a high-precision feel. One particularly nice touch is that the zoom lock switch isn't merely capable of locking the

SPECIFICATIONS

FULL-FRAME COMPATIBLE Yes
EFFECTIVE FOCAL LENGTH
With APS-C sensor: 240-960mm
With full-frame sensor: 150-600mm
IMAGE STABILIZER 4-stops, dual mode for static/panning
MINIMUM FOCUS DISTANCE 2.6m
MAX MAGNIFICATION FACTOR 0.2x
MANUAL FOCUS OVERRIDE Full-time, plus manual-priority setting
FOCUS LIMIT SWITCHES AF full, 2.6-10m, 10m-infinity
INTERNAL ZOOM No
INTERNAL FOCUS Yes
FILTER SIZE 105mm
IRIS BLADES 9 blades (rounded)
WEATHER SEALS Yes
SUPPLIED ACCESSORIES Lens caps, hood, tripod foot, carrying strap, soft case
DIMENSIONS (DIA x LENGTH) 121x290mm
WEIGHT 2860g
PRICE £1450/$2000

lens at its shortest length, but can be engaged at any marked zoom length to avoid zoom creep when shooting with a tripod. The lens isn't too heavy for handheld shooting either, at least in fairly short bursts.

There's plenty of high-tech sophistication. Focus modes include autofocus and manual focus, plus a third MO (Manual Override) option. This disables autofocus if you turn the manual focus ring, making full-time manual override available without having to wait for autofocus to lock on to a subject initially. Next up, a focus limit switch enables you to lock the autofocus range to short or long distances, as well as giving full travel. The optical stabilizer comes complete with static and panning modes, and there's a 'Custom' switch for accessing two custom modes. Sigma's optional USB Dock is used to set these up, as well as applying firmware updates.

Performance

Autofocus is fast, whisper-quiet and highly accurate. Outright sharpness and contrast are very impressive throughout the entire zoom range, even at the widest available apertures. Sharpness is further enhanced by the optical stabilizer, which gave a four-stop benefit in our tests for handheld shooting or when using a monopod.

FEATURES

01 The brass mounting ring is weather-sealed, as are the other joints, control rings and switches.

02 The excellent tripod foot operates very smoothly and has click-stops at 90-degree intervals.

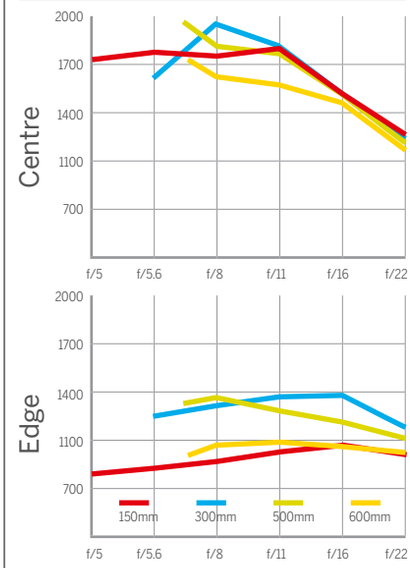
03 Switches include three-mode focus, three-position AF range limiting, dual optical stabilization and dual custom settings.

04 The zoom lock switch can operate at any marked focal length; 150, 180, 200, 250, 300, 400, 500 and 600mm.

05 The optics include two FLD ('Fluorite' Low Dispersion) and three SLD (Special Low Dispersion) elements.

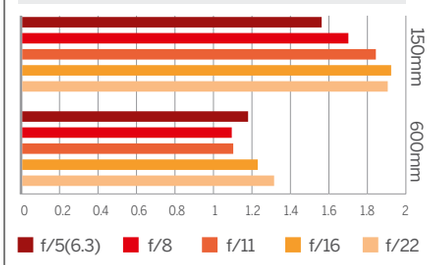
06 Front and rear elements have a coating that repels water, oil and muck.

SHARPNESS



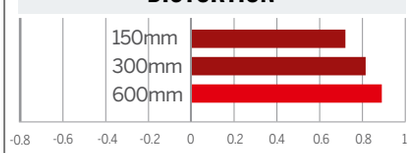
Sharpness is impressive, even shooting wide open at the longest zoom setting

FRINGING (AT EDGE)



Chromatic aberrations are minimal, even right in the corners of images

DISTORTION



There's only slight pincushion distortion, which is constant at all zoom settings

PhotoPlus VERDICT

The widest aperture of f/5-6.3 isn't exactly fast (and you may struggle shooting action in low light) but this lens delivers monster telephoto reach without a teleconverter. Image quality is fabulous and, at the price, build quality and performance are superb.

FEATURES	★★★★★
BUILD & HANDLING	★★★★☆
IMAGE QUALITY	★★★★★
VALUE	★★★★★
OVERALL	★★★★★

Demonstrating real pulling power, Sigma's latest super-telephoto zoom in its 'Sports' line offers incredible telephoto reach when zooming from its 150mm minimum to its 600mm maximum focal length

WIN A PHOTO STUDIO!

Everything you need for the ultimate home studio setup is up for grabs!

PRIZES WORTH £2000!

Ever fancied your own portable photo studio? Well, you can win just that if you enter our fantastic competition, thanks to our friends at Lastolite and Manfrotto. Whether you want to shoot portraits or products, stills or video, the prize bundle has everything you could possibly need, from studio lights, background and reflector, to a tripod, geared head, video light, micro arm to hold gear in place, and even a heavy-duty roller bag to transport kit between locations! Just look at this little lot...

01 Manfrotto Professional Roller Bag 70

THIS PROFESSIONAL travel trolley bag holds two pro-sized DSLRs, two 70-200mm f/2.8 lenses, four to five additional lenses, two flashguns, a 17in laptop, plus a tablet, tripod and much more. The Roller Bag 70 features the Manfrotto Camera Protection System – specifically engineered to guarantee the highest level of protection and shock resistance where it really counts – and the Exo-tough multilayered construction diffuses any sharp impact shocks, ensuring maximum protection.

02 Lastolite HiLite

THE LASTOLITE HiLite background allows you to achieve 'high key' photography on location and in restrictive spaces. Using the HiLite means you no longer need to use a background light behind the subject. The background also works as a large rear softbox and illuminates the subject – plus the whole thing is collapsible.

03 Manfrotto Micro Arm Kit

THIS VERSATILE and innovative 15cm friction arm kit features an interchangeable anti-rotation attachment and additional 3/8in adapter, which allows equipment to be securely interlocked so the arm will not rotate when attached to a tripod or bar through a clamp.

04 Manfrotto XPRO Geared Head

THE XPRO 3 Way Geared Head has been designed for indoor and outdoor use, with an Adapto body making it the lightest and most precise tripod head that Manfrotto has ever created. The geared movement allows you to frame images with the utmost precision, one micro-step at a time, on three axes.

05 Manfrotto LUMIE MUSE

THE LARGEST and brightest in the LUMIE range, the MUSE still only weighs just 140g and is the size of a cassette tape. It's perfect for making lighting for your photos and videos simple, flexible and unique. With super-bright surface-mount LED technology and superb colour accuracy, you can rely on LUMIE to produce excellent images with natural colour every time.

06 Lastolite Lumen8 Flash Kit

THE LASTOLITE Lumen8 flash kit has been designed for photographers who need to be mobile. With flash heads, reflectors, light stands, softboxes, sync cables and a case, this kit is ideal for photography on the move.

07 Manfrotto MK055XPRO-BHQ2

THE MK055XPRO-BHQ2 kit comprises of a 055 three-section aluminium tripod and magnesium XPRO Ball Head with 200PL plate. The tripod features 50% more rigidity and the Quick Power Lock system ensures your equipment is fully stabilized under all conditions, while the centre column can be extended vertically or horizontally. The ball head has a triple locking system to guarantee camera position stability, plus friction control and two levelling bubbles.

08 Lastolite TriGrip

UTILISING A triangular design, which provides a stronger and more stable structure, the Lastolite TriGrip reflector features a moulded handle with securing strap to allow accurate positioning with one hand. This means that light can be reflected into awkward spots without the need for a stand system.

Lastolite™ Professional
www.lastolite.co.uk

Manfrotto Imagine More
www.manfrotto.co.uk

HOW TO ENTER

To be in with a chance of winning this fantastic photo studio setup, go to **www.futurecomps.co.uk/studio** and answer the following question:

Which of these subjects would you most likely photograph in a studio?

A. Landscapes
B. Wildlife
C. Portraiture

Entries must be received by 31 December 2015. UK only. The winner will be selected at random from all correct entries received by this date. The prize is as stated: no alternatives cash or otherwise, are available. For full terms and conditions please visit www.futuretcs.com

THE CONTENDERS

Canon Speedlite 320EX
£175/$210

Canon Speedlite 430EX II
£200/$250

Canon Speedlite 600EX-RT
£450/$500

Gloxy GX-F990C TTL Flash Canon
£130/$200

E-TTL FLASHGUNS

Dedication is what you need for effective flash. Matthew Richards puts the best Canon-compatible guns to the test

A flashgun is probably the most important and versatile photographic accessory you'll ever buy. Not just for adding essential illumination to gloomy interior shots or for making an appearance after dark, a flashgun is equally useful under the midday sun. We've all seen (and probably taken) sunny-day portraits where eyes have turned into black holes and there are ghastly shadows under noses and chins. Fill-in flash can bring a glint to the eyes and banish the shadows.

Better still, 'dedicated' flashguns, as featured in this group test, are designed to enable Canon's specific E-TTL (Electronic-Through The Lens) flash metering, taking hard work and mathematical calculations out of your photography – always a good thing. Pre-flash pulses enable the camera to work out just how much flash power is required, and to set the flashgun output accordingly. Even the most-basic modern flashguns can do clever flash tricks but we've gone more up-market in our choice of contenders here.

Flashguns in this test group feature bounce and swivel heads to enable softer and more flattering lighting techniques, as well as manual or automatic zoom mechanisms, for increasing the range when using longer focal length lenses. On top of that, you'll find wireless remote functions for off-camera flash, and advanced modes like HSS (High Speed Sync) and RC (Rear Curtain) operation. Even so, there can be very notable differences between the flashguns on test, so let's get started.

Metz 52 AF-1 Digital £180/$300

Metz 64 AF-1 Digital £300/$480

Nissin Di866 MK II Professional £200/$350

Phottix Mitros+ TTL Transceiver £300/$400

CANON SPEEDLITE 320EX £175/$210

One of the least expensive flashguns on test, it's also the most basic, but wireless slave mode works well

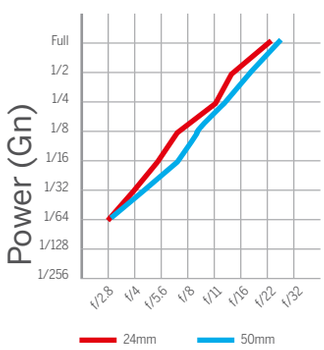
Smaller and lighter than any other flashgun in the group, the 320EX is also light on features. It has no motorized zoom facility, no LCD screen around the back, and no red AF assist lamp. Instead, you can only manually switch the head between 24mm and 50mm zoom settings, which soon runs out of reach for telephoto shooting, and there's no diffuser panel for wider-angle coverage, either.

With the lack of on-board controls or an LCD screen, you have to set flash exposure compensation or manual power levels via menus from the host camera. This can be a little long-winded. The lack of a red AF-assist light also means that the autofocus beam comes courtesy of an annoying stream of pulses from the main flash tube, like when using a camera's pop-up flash for the same purpose.

It's not all doom and gloom. The 320EX is particularly easy to use in wireless slave mode and, in this group, boasts a unique feature. It's the only one with a built-in constant LED lamp, which is potentially useful for video shooting and close-up photography.

Performance

Despite its lowly GN (Guide number) rating of 32, the measured output power at 24mm and 50mm zoom settings matches that of the more powerful Canon 430EX II. Recycling speed is also brisk, at as little as 2.7 seconds from a full-power flash. E-TTL (Electronic-Through The Lens) flash metering is accurate but the video lamp lacks sufficient power to be genuinely useful.



FEATURES

01 The relatively small head has no pull-out wide-angle diffuser or fill-in card.

02 There's no red AF-assist light but the constant video LED lamp is unique.

03 Decent build quality includes a metal mounting foot.

04 Switches give access to three groups and four channels for wireless slave use.

05 With only a basic Manual/Auto switch, power needs to be set from the camera.

VERDICT

FEATURES ★★★☆☆

BUILD QUALITY ★★★☆☆

PERFORMANCE ★★★☆☆

VALUE ★★☆☆☆

OVERALL ★★★☆☆

HOW WE TEST

Our two-stage procedure combines extensive real-world shooting with rigorous lab tests

All features were tested for each of the flashguns. These typically include on-board flash exposure compensation and manual power settings, motorized zoom heads and advanced modes like high speed sync, rear curtain and strobe flash. To test power output, we used a flash meter one metre from each flashgun. We checked the complete range of manual power settings, in one-stop increments. Based on ISO100, the figures correlate directly with the Gn (Guide number). The results were checked by taking shots with the appropriate lens apertures and using the camera's histogram display in playback mode. This was done for flash zoom settings of 24mm, 50mm and 105mm.

We also checked the accuracy and consistency of E-TTL (Electronic-Through The Lens) flash metering (see opposite), and the speed with which each flashgun could recycle after a full-power flash, using both Ni-MH and alkaline cells.

CANON SPEEDLITE 430EX II £200/$250

The most mainstream Canon offering, the 430EX II is about to be replaced but still packs a punch

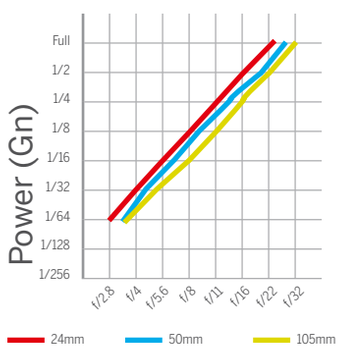
Canon couldn't get a review sample of the new 430EX III-RT to us in time for this Super Test, but there's still plenty of life in the Mk II edition, which also costs £50/$50 less. Some may also prefer the Mk II's more conventional control panel, which puts a wealth of functions at your fingertips.

Only a little pricier than the 320EX, this flashgun has a much higher specification. The motorized zoom head has a range of 24-105mm and includes a pull-out diffuser for ultra-wide-angle shooting. Essentials include a red AF-assist lamp, on-board controls for auto/manual power settings, high-speed sync and rear-curtain modes. To be fair, the 430EX II doesn't have any flash modes that aren't also available in the 320EX, but it's handy being able to get to them without resorting to camera menus.

This flashgun loses out to the new Mk III edition in that it lacks RF (radio frequency) wireless transmission. Instead, it operates in Canon's more conventional wireless slave mode, and there's no facility to use it as a wireless master for triggering other flashguns.

Performance

Maximum output power matches – or even beats – most other flashguns on test, as revealed in our lab tests. E-TTL metering is sharp and consistent, and recycling speeds are quick. Overall, it's a good performer and works seamlessly with Canon cameras, as you'd expect. Despite the new Mk III now on sale, the Mk II is an attractive purchase at the price.



FEATURES

01 The flash head is larger than the 320EX and adds a wide-angle diffuser.

02 A sensor beneath the main flash head enables wireless slave operation.

03 The AF-assist lamp enables accurate autofocus even in complete darkness.

04 It's a fairly small backlit LCD but it displays important shooting info.

05 Control buttons are well laid out, logical and intuitive to use.

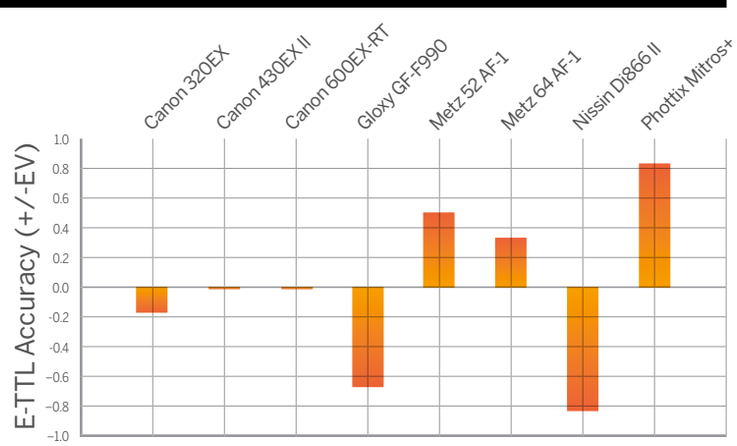
VERDICT

FEATURES ★★★★☆
BUILD QUALITY ★★★★☆
PERFORMANCE ★★★★☆
VALUE ★★★★☆
OVERALL ★★★★☆

E-TTL ACCURACY

The accuracy of through-the-lens flash metering can vary noticeably between each flashgun...

To check the accuracy and consistency of E-TTL flash metering, we took a series of shots at a variety of distances, using lenses of various focal lengths. In each case we filled the frame with a Lastolite grey card and relied on E-TTL metering to give the correct flash exposure. The results were checked in Digital Photo Professional, viewing the spike produced on the histogram display. Any inaccuracies were measured by applying exposure compensation of the required amount to put the histogram spike at the correct position.



Results closest to zero indicate greatest flash metering accuracy

CANON SPEEDLITE 600EX-RT £450/$500

Canon's top-flight, fully pro-grade flashgun is feature-rich, highly advanced and well built

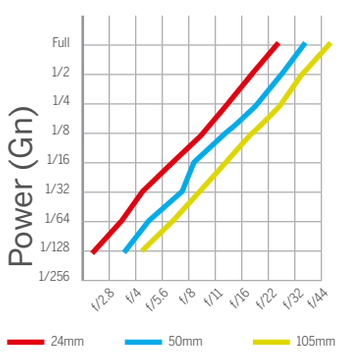
Considering this costs more than an EOS 700D, you'd expect it to be something special. It's robust and rugged, with weather-seals and a large flash tube with a powerful Gn 60-rated output, a generous 20-200mm motorized zoom, pull-out wide-angle diffuser and fill-in reflector card.

Unlike other Canon flashguns on test, this one features full 180-degree swivel in both left and right directions, as well as adding a -7 degree downward tilt that still rises to a full 90-degree upright setting. It offers master, as well as slave, functions in wireless modes. Better still, it adds RF wireless triggering, which extends the range to 30m and works through obstacles. With multiple EX-600RT flashguns, you can also fire the camera from a remote flashgun.

Pro features lacking in the other Canon Speedlites include a power input socket for running the flashgun from an optional external power pack, and a PC sync terminal for triggering via a cable. The 600EX-RT also adds a strobe flash mode, for programmable sequential bursts of output during long exposures.

Performance

Performance is every bit as good as you'd hope for in Canon's top professional flashgun. E-TTL metering is superbly accurate, practically guaranteeing consistent results throughout shooting sessions. The maximum power output is mighty and the range of basic and advanced settings is easily controllable through the excellent control panel.



BEST ON TEST Photo Plus ★★★★★ AWARD

FEATURES

01 The large flash head has a diffuser panel and a fill-in reflector.

02 Going further than most, the motorised zoom covers a range of 20-200mm.

03 Sockets at the side include an external power input and PC sync terminal.

04 The large backlit LCD gives a wealth of information for all flash modes.

05 The upper bank of control buttons are context-sensitive, labelled on the LCD.

VERDICT

FEATURES ★★★★★
BUILD QUALITY ★★★★★
PERFORMANCE ★★★★★
VALUE ★★★★☆
OVERALL ★★★★★

GETTING FLASHY

Bounce, swivel and off-camera options

Without flash, poorly lit subjects can look dull and lifeless. Direct flash can be overly harsh. Bouncing the flash off a ceiling or wall softens the light but, for portraits, eyes can lack sparkle. A diffusion dome combines direct and bounced light for a more balanced effect but can cause unsightly shadows. Remote, off-camera flash gives best results, with natural modelling for 3D-looking images.

No Flash

Direct Flash

GLOXY GX-F990C TTL FLASH £130/$200

The Gloxy punches above its weight and well above its price tag, but isn't entirely happy about being a slave

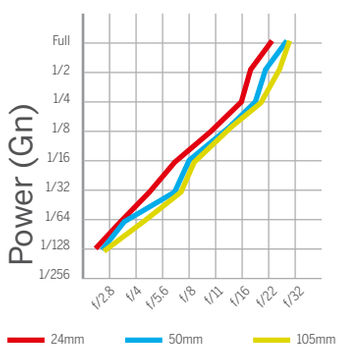
The size, weight and control panel layout of this flashgun bear more than a resemblance to Canon's top-flight EX600-RT, yet it's the outright cheapest flashgun in the whole group. It can't match the Canon's weather-sealed build quality but the feature list looks highly desirable. The claimed maximum Gn 54 certainly isn't short on power, while advanced flash modes include a programmable strobe as well as the usual high-speed sync and rear-curtain options.

Like the EX600-RT, there's 180-degrees of swivel in both directions and -7 to 90 degrees of bounce. The flash head includes a wide-angle diffuser and a fill-in reflector card, and has a 18-180mm zoom range. There are sockets for PC sync and an optional external power pack, and it's supplied with a diffusion dome and a set of coloured filters.

There's only one real omission to the extensive features and up-market specs; it can't operate in wireless slave mode. You can still use it in a more basic 'optical slave' mode, though, where a built-in photoelectric cell registers a flash from another flashgun and fires at manual power settings between full power and 1/128 output.

Performance

Maximum output power proved a little disappointing, and lower than that of the Canon 430EX II. E-TTL accuracy could also be better, generally giving results that are under-exposed by about two-thirds of a stop. Recycle speeds are fairly quick though, even after a full-power flash.



FEATURES

01 The large flash tube enclosure includes a diffuser panel and reflector card.

02 A powerful 10x zoom range is equivalent to focal lengths of 18-180mm.

03 Just below the red AF-assist lamp is a socket for an external power pack.

04 A PC sync terminal is at the side, under a rubber flap.

05 The interface looks similar to the Canon 600EX-RT's, but is relatively basic.

VERDICT

FEATURES ★★★★☆
BUILD QUALITY ★★★☆☆
PERFORMANCE ★★★☆☆
VALUE ★★★★★
OVERALL ★★★★☆

Bounce Flash

Diffusion Dome

Off-Camera Flash

METZ 52 AF-1 DIGITAL £180/$300

The less expensive of the two Metz flashguns on test, the 52 AF-1 nevertheless offers advanced functions

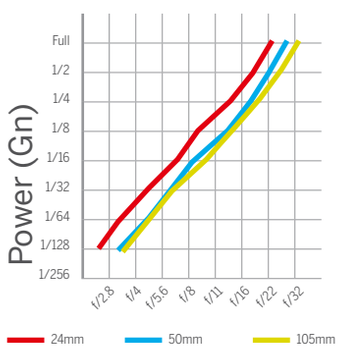
This competitively priced flashgun delivers a strong Gn 52 maximum power rating and plenty of high-end thrills. The bounce and zoom head features 180 and 120 degrees of swivel to the left and right respectively, 0-90 degrees of tilt, and 24-105mm motorized zoom. There's a wide-angle diffuser and reflector card, and the usual red light for AF assist.

What's more unusual, especially at the price, is that the 52 AF-1 features full wireless master and slave modes, compatible with other Canon and third-party flashguns. Moreover, setup is easy and intuitive, thanks to a touchscreen display at the rear. It requires a fairly vigorous prod at times, but at least you can operate it with gloves on. To help keep your own head on straight when the flashgun's head is pivoted for portrait-orientation shots, a built-in sensor enables automatic screen rotation.

A USB port enables firmware upgrades to be applied via a computer, theoretically ensuring continued compatibility if Canon makes operational changes to its camera bodies.

Performance

Despite its higher Gn 52 rating, compared with the Canon 430EX II's Gn 43, both flashguns gave virtually identical maximum power outputs in our tests. Recycling speeds are noticeably slower from the Metz, and E-TTL flash metering is a little on the bright side. Overall, it's a good choice if you want full wireless master/slave functions, without paying over the odds.



FEATURES

01 The tube is a little smaller than the Metz 64 AF-1's, and there's no sub-flash.

02 A wide-angle diffuser extends the 24-105mm zoom range to 12mm.

03 Sideways swivel is of 180 degrees to the left and 120 degrees to the right.

04 A clutter-free back panel relies on a mono touchscreen with auto rotation.

05 A flash test/ready button sits beneath the menu button.

VERDICT

FEATURES ★★★★☆

BUILD QUALITY ★★★★☆

PERFORMANCE ★★★★☆

VALUE ★★★★★

OVERALL ★★★★☆

CLEVER HEADS

Flashguns often have useful extras built in

All these flashguns have bounce and swivel heads but some can point downwards, as well as up, for extreme close-ups, and some swivel a full 180 degrees in only one direction, others manage both directions. All but the Canon 320EX feature motorized zooming of at least 24-105mm, but some stretch as far as 200mm. A wide-angle diffuser is usually available, flipping over the flashgun's tube to enable ultra-wide-angle firing. Some also add a slide-out reflector card.

Most flashguns feature both a wide-angle diffuser panel and a fill-in reflector card that slide out of the upper housing

METZ 64 AF-1 DIGITAL £300/$480

Metz's range-topping flash combines professional-grade specifications with touchscreen ease of use

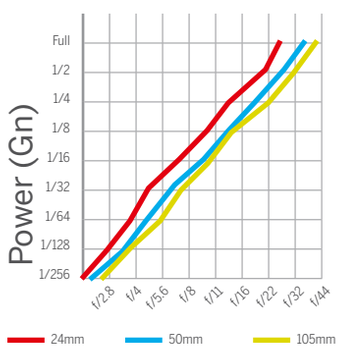
Bigger and more powerful than the Metz 52 AF-1, this new flash takes everything to a higher level. The maximum power rating is Gn 64 at the telephoto end of its longer 24-200mm zoom range, vertical bounce reaches down to -9 degrees and, uniquely in this group, manual power can be adjusted down to 1/256th. Advanced flash modes include programmable strobe as well as HSS and rear-curtain.

Another useful feature is the provision of a secondary sub-flash tube. You can adjust the sub-flash power independently and it's neat for adding a little direct flash when using the main flash tube in bounce mode.

Additional top-end features lacking in the 52 AF-1 include a PC sync terminal and a socket for attaching an external power pack. The USB port for applying firmware upgrades is retained, whereas the touchscreen is bigger and has a colour, rather than mono, display. It still features auto rotation for landscape and portrait-orientation shooting and a bonus is that, in our tests, touch-sensitivity proved more responsive.

Performance

Recycling speeds are faster than in the Metz 52 AF-1, despite the more powerful output. In our tests, maximum output itself proved a little lower than from the Canon 600EX-RT in the 105-200mm section of the zoom range, but it still outshone everything else in the group. E-TTL flash metering is slightly bright. Overall, it's a top performer and good value at the price.



FEATURES

01 The large flash head has the usual wide-angle diffuser and fill-in reflector card.

02 The sub-flash is great for adding a little direct flash when the main tube is in bounce mode.

03 There's a PC sync terminal and a socket for an optional external power pack.

04 A colour touchscreen makes adjusting parameters a doddle.

05 The uncluttered rear has the minimum amount of buttons.

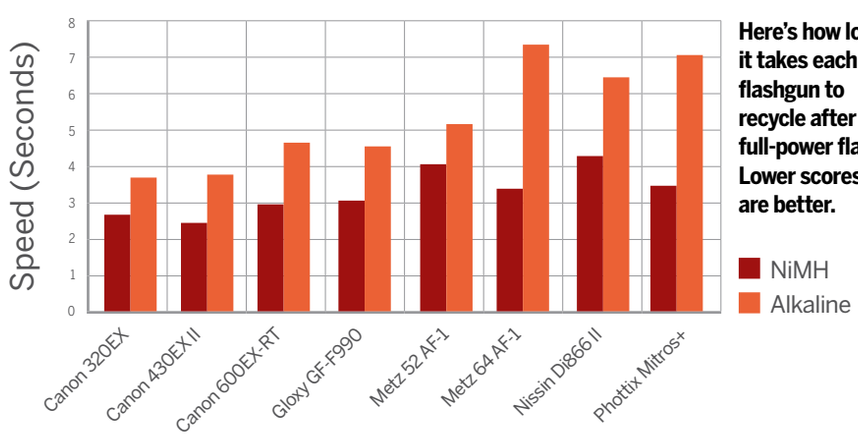
VERDICT

FEATURES ★★★★★
BUILD QUALITY ★★★★☆
PERFORMANCE ★★★★★
VALUE ★★★★★
OVERALL ★★★★★

RECYCLE SPEED

How long will you have to wait?

At low power settings, most flashguns recycle almost instantly, so they're ready to fire again with practically no delay. However, at high power settings, recycling can take several seconds. It can be especially frustrating if you're trying to capture a definitive moment by taking a sequence of shots. Our graph shows the recycle speed for each flashgun after a full-power flash, using freshly charged Ni-MH and new alkaline batteries.



Here's how long it takes each flashgun to recycle after a full-power flash. Lower scores are better.

NISSIN DI866 MK II PROFESSIONAL £200 $350

The Mark II edition of this flashgun aims to cater to professional aspirations, at consumer-friendly price

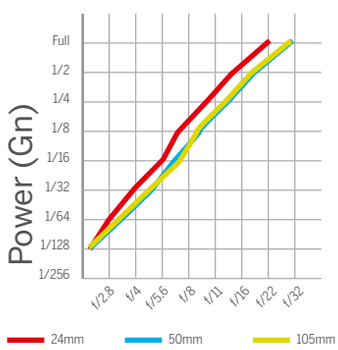
You wouldn't expect a flashgun at the lower end of the price range to have 'professional' features, but as well as a Gn 60 power rating, this has a full complement of high-speed sync, rear-curtain and programmable strobe modes.

Like the Metz 64 AF-1, it also includes a secondary sub-flash module and a colour LCD screen with auto rotation, although this is much smaller and lacks touch-sensitivity. Instead, there's a four-way pad surrounding a 'Set' button, which proves similarly quick and easy for adjusting settings.

Full wireless master/slave functions are available but, surprisingly, the Nissin is the only flashgun in the group in which custom settings can't be changed from the Flash Control menu in the host camera. Connection sockets include PC sync, USB and an input for an optional external power pack. For regular fitment of four AA cells, additional caddies are also available to enable speedy changeover if your batteries go flat at the wrong moment.

Performance

We suffered significant underexposure throughout our E-TTL tests, equivalent to nearly a full f-stop. Maximum output power also proved disappointing, equating to just Gn 29, with no increase in effective power when zooming from 50mm to the full telephoto stretch of 105mm. Despite delivering less output power than most competing flashguns, recycling speed is fairly slow. In all, the Nissin is feature-rich but disappointing in its performance.



FEATURES

01 The motorized zoom head covers a standard range of 24-105mm

02 A wide-angle diffuser and fill-in reflector card are included.

03 Like the Metz 64 AF-1, the Nissin has a secondary sub-flash tube.

04 The colour LCD screen has auto rotation.

05 Menus are navigated via a four-way pad and Set button.

VERDICT

FEATURES ★★★★☆
BUILD QUALITY ★★★★☆
PERFORMANCE ★★★☆☆
VALUE ★★★★☆
OVERALL ★★★★☆

GO WIRELESS

Cable-free, off-camera flash is available in most Canon DSLRs

Apart from the 1100D, 1200D and 100D, all Canon DSLRs from the 600D onwards that feature a built-in flash can trigger remote flashguns wirelessly. You can configure the pop-up flash to act as a wireless master via the Flash Control option in the camera's shooting menu, and then set the flashgun to wireless slave mode. All but the Gloxy flashgun in this test group feature a wireless slave mode, and some also feature full wireless master/slave options, so can also be used as a controller.

Options include 'easy' and 'custom' wireless settings, the latter enabling you to control multiple flashguns, in different groups, as well as whether the pop-up flash is used as part of the lighting setup or just as a controller.

In 'custom wireless' mode, you can set the power ratio between the external slave flashgun and pop-up master

PHOTTIX MITROS+ TTL TRANSCEIVER £300 $400

A clever flashgun with an extra-long remote firing range, the Mitros+ competes at the highest level

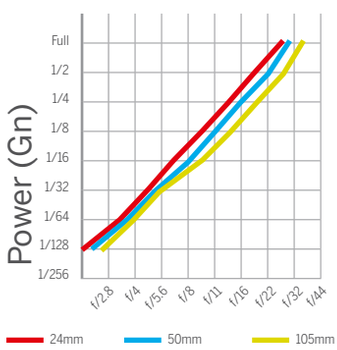
With a Gn 58 rating, the Mitros+ almost rivals the Canon 600EX-RT, Metz 64 AF-1 and Nissin Di866 Mk II for claimed maximum power. It has a similarly advanced feature set. Highlights include -7 to 90-degree bounce, 180-degree swivel in both directions, and programmable strobe, HSS and rear-curtain modes.

The Mitros+ also competes directly with the Canon 600EX-RT by featuring an RF transceiver. In fact, it has a Phottix Odin transmitter and receiver built-in, as well as a Strato receiver, enabling remote firing over up to 100 metres. The flashgun can therefore be used on-camera as an RF controller, or off-camera with RF triggering from Odin or Strato triggers.

Luxuries include a weather-sealed mount and an external power socket that's compatible with the Canon CP-E4 battery pack. A diffusion dome is supplied, in addition to the built-in wide-angle diffuser and fill-in reflector card, while other connectivity sockets include USB and PC sync.

Performance

Whereas the Nissin Di 866 II tended to underexpose by nearly a stop in our E-TTL accuracy tests, the Mitros+ overexposed by a similar amount, giving overly bright results. Maximum output is higher than the Nissin, but not as powerful as the Canon 600EX-RT or Metz 64 AF-1. Recycling speeds are faster than the Nissin when using Ni-MH batteries. With a little negative flash exposure compensation, the Mitros+ gives very good results.



FEATURES

01 The large flash head houses a pull-out wide-angle diffuser and reflector card.

02 Like the 600EX-RT, the hotshoe foot has a weather-seal shroud.

03 A Phottix Odin transmitter and receiver, plus Strato receiver, are built-in.

04 It's not colour, but the backlit LCD is nevertheless clear.

05 Menus are navigated via a four-way pad and Set button.

VERDICT

FEATURES ★★★★★
BUILD QUALITY ★★★★☆
PERFORMANCE ★★★★☆
VALUE ★★★★☆
OVERALL ★★★★☆

ADVANCED FLASHGUN MODES

Flash in broad daylight or use modes to extend your gun's powers

Canon D-SLRs typically have a flash sync speed of 1/200 or 1/250 sec – the maximum shutter speed you can use without part of the frame being underexposed due to the shutter not being fully open for the duration of the flash. HSS (High Speed Sync) mode enables you to use flash even at the fastest shutter speed available in your camera – when you want to use fill-flash on a sunny day, or for freezing action – although the maximum output power will be significantly reduced. Other advanced modes include 'rear curtain' where the flash fires at the end of the shutter cycle, and 'stroboscopic' mode, where multiple flashes are fired during a long exposure, for capturing multiple views of a moving object in a single image.

HSS flash mode enables you to use fill flash at even the fastest shutter speeds, for correct exposures under direct sunlight

COMPARISON TABLE

	CANON SPEEDLITE 320EX	CANON SPEEDLITE 430EX II	CANON SPEEDLITE 600EX-RT	GLOXY GF-F990	METZ 52 AF-1	METZ 64 AF-1	Nissin Di866 II	Phottix Mitros+
MAX CLAIMED GN (ISO 100, METRES)	Gn 32	Gn 43	Gn 60	Gn 54	Gn 52	Gn 64	Gn 60	Gn 58
BOUNCE (DEGREES)	0 to 90 degrees	0 to 90 degrees	-7 to 90 degrees	-7 to 90 degrees	0 to 90 degrees	-9 to 90 degrees	0 to 90 degrees	-7 to 90 degrees
SWIVEL (LEFT/RIGHT)	180 / 90	180 / 90	180 / 180	180 / 180	180 / 120	180 / 120	90 / 180	180 / 180
ZOOM RANGE	24-50mm (manual)	24-105mm (auto)	20-200mm (auto)	18-180mm (auto)	24-105mm (auto)	24-200mm (auto)	24-105mm (auto)	24-105mm (auto)
WIDE-ANGLE DIFFUSER	No	14mm	14mm	14mm	12mm	12mm	18mm	14mm
REFLECTOR CARD	No	No	Yes	Yes	Yes	Yes	Yes	Yes
AUTO METERING	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II	E-TTL / E-TTL II
FLASH EXP COMP	Via camera only	+/-3EV	+/-3EV	+/-3EV	+/-3EV	+/-3EV	+/-3EV	+/-3EV
MANUAL POWER	Via camera only	1/1 to 1/64	1/1 to 1/128	1/1 to 1/128	1/1 to 1/128	1/1 to 1/256	1/1 to 1/128	1/1 to 1/128
AF-ASSIST BEAM	Flash strobe	Red lamp	Red lamp	Red lamp	Red lamp	Red lamp	Red lamp	Red lamp
SECONDARY LAMP	Slave only	Slave only	Master/Slave	Optical slave only	Master/Slave	Master/Slave	Master/Slave	Master/Slave
EXTRA MODES	HSS, RC	HSS, RC	HSS, RC, Strobe	HSS, RC, Strobe	HSS, RC	HSS, RC, Strobe	HSS, RC, Strobe	HSS, RC, Strobe
TTL EXP ERROR	-0.17EV	0EV	0EV	-0.67EV	+0.5EV	+0.33EV	-0.83EV	+0.83EV
FULL RECYCLE (NIMH/ALKALINE)	2.7/3.7 seconds	2.5/3.8 seconds	3.0/4.7 seconds	3.1/4.6 seconds	4.1/5.2 seconds	3.4/7.4 seconds	4.3/6.5 seconds	3.5/7.1 seconds
FLASH INFO LCD	No	Yes	Yes	Yes	Yes (touchsccreen)	Yes (colour touchscreen)	Yes (colour)	Yes
SUPPLIED ACCESSORIES	Pouch, foot	Pouch, foot	Pouch, foot, filters	Pouch, foot, dome, filters	Pouch, foot	Pouch, foot	Pouch, foot	Pouch, foot, dome
DIMENSIONS	70x115x78mm	72x122x101mm	80x143x125mm	75x148x105mm	73x134x90mm	78x148x112mm	74x139x113mm	78x147x103mm
WEIGHT	275g	320g	425g	340g	346g	422g	380g	427g
TARGET PRICE	£175/$210	£200/$250	£450/$500	£130/$200	£180/$300	£300/$480	£200/$350	£300/$400
FEATURES	★★★☆☆	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★★★	★★★★☆	★★★★★
BUILD & HANDLING	★★★☆☆	★★★★☆	★★★★★	★★★☆☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆
PERFORMANCE	★★★☆☆	★★★★☆	★★★★★	★★★☆☆	★★★★☆	★★★★★	★★★☆☆	★★★★☆
VALUE	★★☆☆☆	★★★★☆	★★★★☆	★★★★★	★★★★★	★★★★★	★★★★☆	★★★★☆
OVERALL	★★★☆☆	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★★★	★★★★☆	★★★★☆

THE WINNER IS... CANON SPEEDLITE 600EX-RT

It's simply the best overall flashgun on the market for Canon EOS DSLR users

Everything about the 600EX-RT screams 'professional quality', from its massive output power to its unerringly accurate and consistent E-TTL metering. Build quality is top-notch, and the range of high-end features includes all imaginable flash modes, along with powerful wireless radio triggering. The catch is it's the most expensive flashgun here at £450.

Our second-favourite flashgun is the Metz 64 AF-1, which again delivers excellent performance and plentiful power, while the similarly feature-packed Phottix Mitros+ takes third place. The Metz 52 AF-1 has a relatively reduced feature set, but it's still an advanced flashgun that has excellent wireless master/slave functions and is a great buy at the price.

If you can live with only a basic optical slave function, the Gloxy GX-F990C is an impressive performer with a wealth of advanced flash modes, and is unbeatable value for money.

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Canon

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EF 28MM F1.8 USM	£379.00	
EF 28MM F2.8 IS USM	£389.00	
EF 35MM F1.4L USM	£825.00	After Cashback. Ends 26.10.15
EF 35MM F2 IS USM	£354.00	After Cashback. Ends 26.10.15
EF 40MM F2.8 STM	£129.00	
EF 50MM F1.2L USM	£885.00	After Cashback. Ends 26.10.15
EF 50MM F1.4 USM	£209.00	After Cashback. Ends 26.10.15
EF 50MM F1.8 II	£99.00	
EF 85MM F1.2L II USM	£1,349.00	After Cashback. Ends 26.10.15
EF 85MM F1.8 USM	£215.00	After Cashback. Ends 26.10.15
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EF 300MM F2.8L IS II USM	£4,799.00	
EF 300MM F4L USM IS	£999.00	
EF 400MM F5.6L USM	£919.00	
EF 500MM F4L IS II USM	£6,898.00	

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EF 11-24MM F4L USM	£2,799.00	
EF 16-35MM F2.8L USM MKII	£1,100.00	
EF 16-35MM F4L IS USM	£721.00	
EF 17-40MM F4L USM	£549.00	
EF 24-105 F3.5/5.6 IS STM	£379.00	
EF 24-105 F4L IS USM	£674.00	After Cashback. Ends 26.10.15
EF 24-70MM F2.8L II USM	£1,400.00	
EF 24-70MM F4L IS USM	£699.00	
EF 70-200MM F2.8L IS II USM	£1,499.00	
EF 70-200MM F2.8L USM	£945.00	
EF 70-200MM F4L IS USM	£800.00	
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EF-S 18-200MM F3.5/5.6 IS	£379.00
EF-S 18-55MM F3.5/5.6 IS II	£109.99
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BUYERS' GUIDE

With prices ranging from a couple of hundred quid to several thousand, Canon has a DSLR to suit everyone, from the complete beginner to most demanding pro...

What to look for

Canon EOS DSLRs

Canon splits its EOS lineup into entry-level, enthusiast and professional ranges, and the fewer digits the more upmarket the camera; so the 1200D is the most basic, the 750D/760D for intermediates, while the 1D X is strictly for pros or those with deep pockets. Expect greater ease of use (with thumb-operated scrollwheels replacing cumbersome cursor keys), more robust build quality (with weather-sealing and tough magnesium-alloy shells), more advanced functionality, and full-frame (rather than smaller APS-C) image sensors with more expensive EOS models.

DSLR prices quoted are body-only

ENTRY LEVEL

CANON EOS 1200D (REBEL T5)

TESTED IN ISSUE **105** PRICE: **£230/$320**

AN IDEAL starter camera, it keeps things simple yet covers all the basics, including an 18Mp sensor. A handy companion app is available for free download, serving as an interactive shooting guide. However, the low-res LCD screen lacks touch or vari-angle facilities. ★★★☆☆

Sensor	18Mp, APS-C (5184x3456 pixels)
Viewfinder	Pentamirror, 0.8x, 95%
ISO	100-6400 (12,800 expanded)
AF	9-point (1 cross-type)
LCD	3in, 460K dots
Max burst (buffer)	3fps (6 Raw/69 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 100D (REBEL SL1)

TESTED IN ISSUE **105** PRICE: **£279/$399**

IT'S SMALLER than any other Canon DSLR but is big on features and is something of a step up in sophistication from the 1200D, with a newer-generation image processor, high-res touchscreen and 'hybrid CMOS AF' for effective continuous autofocus during movie capture. ★★★★☆

Sensor	18Mp, APS-C (5184x3456 pixels)
Viewfinder	Pentamirror, 0.87x, 95%
ISO	100-12,800 (25,600 expanded)
AF	9-point (1 cross-type)
LCD	3in touchscreen, 1040K dots
Max burst (buffer)	4fps (7 Raw/28 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 700D (REBEL T5i)

TESTED IN ISSUE **105** PRICE: **£400/$649**

WITH A faster continuous drive rate than the 100D, better AF and the bonus of a vari-angle touchscreen, the 700D is more versatile for shooting from extreme angles or around corners. It's a lovely lightweight camera but is now outclassed by the newer 750D. ★★★★☆

Sensor	18Mp, APS-C (5184x3456 pixels)
Viewfinder	Pentamirror, 0.85x, 95%
ISO	100-12,800 (25,600 expanded)
AF	9-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	5fps (6 Raw/22 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 750D (REBEL T6i)

TESTED IN ISSUE **105** PRICE: **£506/$749**

HEADLINE attractions include a new 24.2Mp high-resolution image sensor and DIGIC 6 processor, plus a 19-point autofocus system. It beats the older 700D in all these respects, and adds Wi-Fi and NFC connectivity for easy image sharing and printing. ★★★★☆

Sensor	24.2Mp, APS-C (6000x4000 pixels)
Viewfinder	Pentamirror, 0.82x, 95%
ISO	100-12,800 (25,600 expanded)
AF	19-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	5fps (8 Raw/940 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 760D (REBEL T6s)

TESTED IN ISSUE **101** PRICE: **£649/$849**

BUILDING on the impressive features of the 750D, the 760D adds a secondary info LCD on the top and Quick Control Dial on the rear. This improves handling and makes it feel more like an 'enthusiast' model, rather than an entry-level DSLR, and is worth the extra outlay. ★★★★★

Sensor	24.2Mp, APS-C (6000x4000 pixels)
Viewfinder	Pentamirror, 0.82x, 95%
ISO	100-12,800 (25,600 expanded)
AF	19-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	5fps (8 Raw/940 JPEG)
Memory card	SD/SDHC/SDXC

ENTHUSIAST

CANON EOS 70D

TESTED IN ISSUE **79** PRICE: **£729/$999**

A BREAKTHROUGH DSLR, the 70D delivers fast and smooth autofocus in Live View and movie modes, thanks to its revolutionary 'Dual Pixel CMOS AF' image sensor, backed up by DIGIC 5+ processing. The 7fps continuous drive rate is quick and it has built-in Wi-Fi. ★★★★★

Sensor	20.2Mp, APS-C (5472x3648 pixels)
Viewfinder	Pentaprism, 0.95x, 98%
ISO	100-12,800 (25,600 expanded)
AF	19-point (all cross-type)
LCD	3in touchscreen vari-angle, 1040K dots
Max burst (buffer)	7fps (16 Raw/65 JPEG)
Memory card	SD/SDHC/SDXC

CANON EOS 7D

TESTED IN ISSUE **29** PRICE: **£710/$799**

IT'S A quick-shooter 8fps camera with dual processors and a tough magnesium alloy build. However, while it had standout specifications when launched back in 2009, it has now been eclipsed by the new 7D Mk II. It is great value though – whilst stocks last! ★★★★☆

Sensor	18Mp, APS-C (5184x3456 pixels)
Viewfinder	Pentaprism, 1.0x, 100%
ISO	100-6400 (12,800 expanded)
AF	19-point (all cross-type)
LCD	3in, 920K dots
Max burst (buffer)	8fps (25 Raw/126 JPEG)
Memory card	CompactFlash

CANON EOS 7D MK II

TESTED IN ISSUE **95** PRICE: **£1299/$1499**

HERE'S the king of action-packed APS-C format cameras. A long-overdue revamp of the original 7D, it has 65-point AF with advanced tracking, 10fps continuous drive, dual DIGIC 6 processors and GPS, all wrapped up in a tough, weather-sealed magnesium alloy shell. ★★★★★

Sensor	20.2Mp, APS-C (5472x3648 pixels)
Viewfinder	Pentaprism, 1.0x, 100%
ISO	100-16,000 (51,200 expanded)
AF	65-point (all cross-type)
LCD	3in, 1040K dots
Max burst (buffer)	10fps (31 Raw/unlimited JPEG)
Memory card	CompactFlash + SD/SDHC/SDXC

CANON EOS 6D

TESTED IN ISSUE **67** PRICE: **£1133/$1399**

AMAZINGLY good value for a full-frame EOS DSLR in a medium-sized body, the 6D combines a respectable 20.2Mp sensor with super-high sensitivities of up to ISO102,400. Image quality is excellent and there's built-in Wi-Fi and GPS, but the 6D has a fairly basic AF system. ★★★★☆

Sensor	20.2Mp, full-frame (5472x3648 pixels)
Viewfinder	Pentaprism, 0.71x, 97%
ISO	100-25,600 (50-102,400 expanded)
AF	11-point (1 cross-type)
LCD	3in, 1040K dots
Max burst (buffer)	4.5fps (17 Raw/1250 JPEG)
Memory card	SD/SDHC/SDXC

PROFESSIONAL

CANON EOS 5D MK III

TESTED IN ISSUE **61** PRICE: **£2249/$2499**

REMARKABLY compact and lightweight for a fully pro and weather-sealed full-frame body, the 22Mp 5D Mk III boasts the same top-notch AF system as the 1D X and delivers stunning image quality, even under very low lighting. The big, bright viewfinder is brilliant. ★★★★★

Sensor	22.3Mp, full-frame (5760x3840 pixels)
Viewfinder	Pentaprism, 0.71x, 100%
ISO	100-25,600 (50-102,400 expanded)
AF	61-point (41 cross-type, 5 dual-cross)
LCD	3.2in, 1040K dots
Max burst (buffer)	6fps (18 Raw/16,270 JPEG)
Memory card	CompactFlash + SD/SDHC/SDXC

CANON EOS 5DS (5DS R)

TESTED IN ISSUE **103** PRICES: **£2999/$3699 (£3199/$3899)**

THE world's first 50Mp full-frame DSLR delivers huge *and* amazingly detailed hi-res images. The higher-cost 5DS R adds a 'low-pass cancellation filter' for marginally sharper shots. As expected with such a high-res sensor, max ISO and drive rate are lower than with the 5D Mk III. ★★★★★

Sensor	50.6Mp, full-frame (8688x5792 pixels)
Viewfinder	Pentaprism, 0.71x, 100%
ISO	100-6400 (50-12,800 expanded)
AF	61-point (41 cross-type, 5 dual-cross)
LCD	3.2in, 1040K dots
Max burst (buffer)	5fps (14 Raw/510 JPEG)
Memory card	CompactFlash + SD/SDHC/SDXC

CANON EOS 1D X

TESTED IN ISSUE **66** PRICE: **£4399/$4599**

CANON'S flagship full-frame professional camera boasts ultra-fast 14fps shooting and super-high ISO, along with sublime handling in its large EOS body. Build quality is rock-solid, yet image resolution is relatively modest, especially compared with the 5DS and 5DS R. ★★★★★

Sensor	18.1Mp, full-frame (5184x3456 pixels)
Viewfinder	Pentaprism, 0.76x, 100%
ISO	100-51,200 (50-204,800 expanded)
AF	61-point (41 cross-type, 5 dual-cross)
LCD	3.2in, 1040K dots
Max burst (buffer)	12–14fps (38 Raw/180 JPEG)
Memory card	2x CompactFlash

PhotoPlus

BUYERS' GUIDE

With over 150 lenses available for Canon DSLRs, picking the best for the job can be a minefield. Here's the lowdown on all currently available EOS-fit glass

Choosing lenses

Key factors to watch out for

THE MAIN factors to consider in a lens are its focal length, maximum aperture, and whether or not it's full-frame compatible. We've categorized lenses by focal length range – from wide-angle to telephoto. The larger a lens's maximum aperture, the 'faster' it's considered to be – allowing you to control depth of field more, and offering better options in low light. Zooms are more flexible than primes, but tend not to have such fast maximum apertures. Full-frame lenses will also work with 'crop-sensor' EOS D-SLRs, but crop-sensor lenses aren't compatible with full-frame cameras.

WIDE-ANGLE ZOOMS

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

WIDE-ANGLE ZOOMS	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 8-15mm f/4L Fisheye USM	£915/$1250	Yes	1.9x	No	f/4	540g	0.15m	0.34x	None	7	90	★★★★	
Canon EF-S 10-18mm f/4.5-5.6 IS STM	£190/$300	No	1.8x	Yes	f/4.5-5.6	240g	0.22m	0.15x	67mm	7	104	★★★★	●
Canon EF-S 10-22mm f/3.5-4.5 USM	£410/$600	No	2.2x	No	f/3.5-4.5	385g	0.24m	0.17x	77mm	6	104	★★★	
Canon EF 11-24mm f/4L USM	£2800/$3000	Yes	2.2x	No	f/4	1180g	0.28m	0.16x	None	9	101	★★★★★	
Canon EF 16-35mm f/2.8L II USM	£1090/$1600	Yes	2.2x	No	f/2.8	640g	0.28m	0.22x	82mm	7	104	★★★★	
Canon EF 16-35mm f/4L IS USM	£725/$1100	Yes	2.2x	Yes	f/4	615g	0.28m	0.23x	77mm	9	104	★★★★	
Canon EF 17-40mm f/4L USM	£500/$800	Yes	2.4x	No	f/4	500g	0.28m	0.24x	77mm	7	74	★★★★	●
Sigma 8-16mm f/4.5-5.6 DC HSM	£520/$700	No	2.0x	No	f/4.5-5.6	555g	0.24m	0.13x	None	7	104	★★★★	
Sigma 10-20mm f/3.5 EX DC HSM	£385/$450	No	2.0x	No	f/3.5	520g	0.24m	0.15x	82mm	7	104	★★★★	
Sigma 10-20mm f/4-5.6 EX DC HSM	£300/$350	No	2.0x	No	f/4-5.6	465g	0.24m	0.15x	77mm	6	74	★★★★	●
Sigma 12-24mm f/4.5-5.6 II DG HSM	£600/$950	Yes	2.0x	No	f/4.5-5.6	670g	0.28m	0.16x	None	6	104	★★★★	
Tamron SP AF 10-24mm f/3.5-4.5 Di II LD	£360/$500	No	2.4x	No	f/3.5-4.5	406g	0.24m	0.2x	77mm	7	87	★★★★	
Tamron SP 15-30mm f/2.8 Di VC USD	£900/$1200	Yes	2.0x	Yes	f/2.8	1100g	0.28m	0.2x	None	9	104	★★★★★	●
Tokina 10-17mm f/3.5-4.5 AT-X DX Fisheye	£450/$485	No	1.7x	No	f/3.5-4.5	350g	0.14m	0.39x	None	6	87	★★★	
Tokina 11-16mm f/2.8 AT-X PRO DX II	£360/$400	No	1.5x	No	f/2.8	550g	0.3m	0.09x	77mm	9	87	★★★	
Tokina 12-28mm f/4 AT-X Pro DX	£495/$450	No	2.3x	No	f/4	530g	0.25m	0.2x	77mm	9	87	★★★	
Tokina 16-28mm f/2.8 AT-X PRO FX	£550/$590	Yes	1.8x	No	f/2.8	950g	0.28m	0.19x	None	9			
Tokina 17-35mm f/4 AT-X PRO FX	£420/$450	Yes	2.1x	No	f/4	600g	0.28m	0.21x	82mm	9			

TELEPHOTO ZOOMS

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

TELEPHOTO ZOOMS	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 55-250mm f/4-5.6 IS STM	£200/$300	No	4.5x	Yes	f/4-5.6	375g	0.85m	0.29x	58mm	7	96	★★★★	
Canon EF 70-200mm f/2.8L IS II USM	£1500/$2100	Yes	2.9x	Yes	f/2.8	1490g	1.2m	0.21x	77mm	8	98	★★★★★	●
Canon EF 70-200mm f/2.8L USM	£975/$1350	Yes	2.9x	No	f/2.8	1310g	1.5m	0.16x	77mm	8	64	★★★★	
Canon EF 70-200mm f/4L IS USM	£805/$1200	Yes	2.9x	Yes	f/4	760g	1.2m	0.21x	67mm	8	98	★★★★★	
Canon EF 70-200mm f/4L USM	£440/$650	Yes	2.9x	No	f/4	705g	1.2m	0.21x	67mm	8	96	★★★★	
Canon EF 70-300mm f/4-5.6 IS USM	£370/$650	Yes	4.3x	Yes	f/4-5.6	630g	1.5m	0.26x	58mm	8	96	★★★	
Canon EF 70-300mm f/4-5.6L IS USM	£900/$1350	Yes	4.3x	Yes	f/4-5.6	1050g	1.2m	0.21x	67mm	8	83	★★★★★	
Canon EF 70-300mm f/4.5-5.6 DO IS USM	£1120/$1400	Yes	4.3x	Yes	f/4.5-5.6	720g	1.4m	0.19x	58mm	6	90	★★★	
Canon EF 75-300mm f/4-5.6 III	£190/$200	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	15	★★★	
Canon EF 75-300mm f/4-5.6 III USM	£220/$180	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	70	★★★	
Canon EF 100-400mm f/4.5-5.6L IS USM	£1150/$1400	Yes	4.0x	Yes	f/4.5-5.6	1380g	1.8m	0.2x	77mm	5	94	★★★★	
Canon EF 100-400mm f/4.5-5.6L IS II USM	£2000/$2200	Yes	4.0x	Yes	f/4.5-5.6	1640g	0.98m	0.31x	77mm	9	100	★★★★	
Canon EF 200-400mm f/4L IS USM Extender 1.4x	£8600/$11,000	Yes	2.8x	Yes	f/4	3620g	2.0m	0.15x	52mm	9	77	★★★★★	
Samyang 650-1300mm MC IF f/8-16	£320/$240	Yes	2.0x	No	f/8-16	2000g	5.0m	0.2x	95mm	0			
Sigma 50-500mm f4.5-6.3 DG OS HSM	£800/$1510	Yes	10.0x	Yes	f/4.5-6.3	1970g	0.5-1.8m	0.32x	95mm	9	94	★★★★	
Sigma 70-200mm f/2.8 EX DG OS HSM	£800/$1200	Yes	2.9x	Yes	f/2.8	1430g	1.4m	0.13x	77mm	9	98	★★★★	●
Sigma 70-300mm f/4-5.6 DG Macro	£100/$170	Yes	4.3x	No	f/4-5.6	545g	0.95m	0.5x	58mm	9	96	★★★	
Sigma APO 70-300mm f/4-5.6 DG Macro	£150/$150	Yes	4.3x	No	f/4-5.6	550g	0.95m	0.5x	58mm	9	96	★★★	●
Sigma 120-300mm f/2.8 DG OS HSM S	£2600/$3600	Yes	2.5x	Yes	f/2.8	3390g	1.5-2.5m	0.12x	105mm	9	98	★★★★	
Sigma APO 150-500mm f/5-6.3 DG OS HSM	£570/$680	Yes	3.3x	Yes	f/5-6.3	1780g	2.2m	0.19x	86mm	9	94	★★★★	
Sigma 150-600mm f/5-6.3 DG OS HSM S	£1450/$2000	Yes	4.0x	Yes	f/5-6.3	2860g	2.6m	0.2x	105mm	9	106	★★★★★	
Sigma 200-500mm f/2.8 EX DG	£12,700/$26,000	Yes	2.5x	No	f/2.8	15,700g	2.0-5.0m	0.13x	72mm	9			
Sigma 300-800mm f/5.6 EX DG HSM	£5500/$8000	Yes	2.7x	No	f/5.6	5880g	6.0m	0.14x	46mm	9			
Tamron SP AF 70-200mm f/2.8 Di LD (IF) Macro	£475/$770	Yes	2.9x	No	f/2.8	1320g	0.95m	0.32x	77mm	9	64	★★★	
Tamron SP AF 70-200mm f/2.8 Di VC USD	£1000/$1500	Yes	2.9x	Yes	f/2.8	1470g	1.3m	0.13x	77mm	9	98	★★★★	
Tamron AF 70-300mm f/4-5.6 Di LD Macro	£100/$150	Yes	4.3x	No	f/4-5.6	458g	0.95m	0.5x	62mm	9	96	★★★	
Tamron SP AF 70-300mm f/4-5.6 Di VC USD	£250/$450	Yes	4.3x	Yes	f/4-5.6	765g	1.5m	0.25x	62mm	9	96	★★★★★	●
Tamron SP 150-600mm F/5-6.3 Di VC USD	£850/$1090	Yes	4.0x	Yes	f/5-6.3	1951g	2.7m	0.2x	95mm	9	94	★★★★★	●

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

STANDARD ZOOMS

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 15-85mm f/3.5-5.6 IS USM	£510/$700	No	5.7x	Yes	f/3.5-5.6	575g	0.35m	0.21x	72mm	7	84	★★★★	
Canon EF-S 17-55mm f/2.8 IS USM	£535/$830	No	3.2x	Yes	f/2.8	645g	0.35m	0.17x	77mm	7	84	★★★★★	●
Canon EF-S 17-85mm f/4-5.6 IS USM	£335/$300	No	5.0x	Yes	f/4-5.6	475g	0.35m	0.2x	67mm	6	72	★★★	
Canon EF-S 18-55mm f/3.5-5.6 IS II	£130/$200	No	3.1x	Yes	f/3.5-5.6	200g	0.25m	0.34x	58mm	6	57	★★★	
Canon EF-S 18-55mm f/3.5-5.6 IS STM	£170/$250	No	3.1x	Yes	f/3.5-5.6	205g	0.25m	0.36x	58mm	7			
Canon EF 24-70mm f/2.8L II USM	£1400/$1900	Yes	2.9x	No	f/2.8	805g	0.38m	0.21x	82mm	9	72	★★★★★	
Canon EF 24-70mm f/4L IS USM	£700/$1000	Yes	2.9x	Yes	f/4	600g	0.38m	0.7x	77mm	9	93	★★★★★	
Canon EF 24-105mm f/3.5-5.6 IS STM	£375/$600	Yes	4.4x	Yes	f/3.5-5.6	525g	0.4m	0.3x	77mm	7			
Canon EF 24-105mm f/4L IS USM	£640/$1000	Yes	4.4x	Yes	f/4	670g	0.45m	0.23x	77mm	8	93	★★★★	
Sigma 17-50mm f/2.8 EX DC OS HSM	£310/$470	No	2.9x	Yes	f/2.8	565g	0.28m	0.2x	77mm	7	84	★★★★	
Sigma 17-70mm f/2.8-4 DC Macro OS HSM C	£330/$400	No	4.1x	Yes	f/2.8-4	465g	0.22m	0.36x	72mm	7	84	★★★★	
Sigma 18-35mm f/1.8 DC HSM A	£650/$800	No	1.9x	No	f/1.8	810g	0.28m	0.23x	72mm	9	90	★★★★★	●
Sigma 24-70mm f/2.8 IF EX DG HSM	£600/$800	Yes	2.9x	No	f/2.8	790g	0.38m	0.19x	82mm	9	93	★★★★	
Sigma 24-105mm f/4 DG OS HSM A	£680/$900	Yes	4.4x	Yes	f/4	885g	0.45m	0.22x	82mm	9	85	★★★★★	
Tamron SP AF 17-50mm f/2.8 XR Di II VC	£330/$650	No	2.9x	Yes	f/2.8	570g	0.29m	0.21x	72mm	7	84	★★★★	
Tamron SP AF 24-70mm f/2.8 Di VC USD	£740/$1300	Yes	2.9x	Yes	f/2.8	825g	0.38m	0.2x	82mm	9	93	★★★★★	●
Tamron SP AF 28-75mm f/2.8 XR Di	£320/$500	Yes	2.7x	No	f/2.8	510g	0.33m	0.26x	67mm	7	57	★★★	

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

SUPERZOOMS

	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 18-135mm f/3.5-5.6 IS STM	£305/$550	No	7.5x	Yes	f/3.5-5.6	480g	0.39m	0.28x	67mm	7	92	★★★★★	
Canon EF-S 18-200mm f/3.5-5.6 IS	£390/$700	No	11.1x	Yes	f/3.5-5.6	595g	0.45m	0.24x	72mm	6	92	★★★★	
Canon EF 28-300mm f/3.5-5.6L IS USM	£1795/$2450	Yes	10.7x	Yes	f/3.5-5.6	1760g	0.7m	0.30x	77mm	8	6	★★★★	
Sigma 18-200mm f/3.5-6.3 DC Macro OS HSM C	£270/$400	No	11.1x	Yes	f/3.5-6.3	430g	0.39m	0.33x	62mm	7	92	★★★★	
Sigma 18-250mm f/3.5-6.3 DC Macro OS HSM	£300/$350	No	13.9x	Yes	f/3.5-6.3	470g	0.35m	0.34x	62mm	7	92	★★★★★	●
Sigma 18-300mm f/3.5-6.3 DC Macro OS HSM C	£400/$580	No	16.7x	Yes	f/3.5-6.3	585g	0.39m	0.33x	72mm	7			
Tamron 16-300mm f/3.5-6.3 Di II VC PZD Macro	£450/$630	No	18.8x	Yes	f/3.5-6.3	540g	0.39m	0.34x	67mm	7	92	★★★★★	●
Tamron AF 18-200mm f/3.5-6.3 XR Di II LD Macro	£135/$200	No	11.1x	No	f/3.5-6.3	405g	0.45m	0.27x	62mm	7	92	★★★	
Tamron AF 18-270mm f/3.5-6.3 Di II VC PZD	£270/$450	No	15.0x	Yes	f/3.5-6.3	450g	0.49m	0.26x	62mm	7	92	★★★★	
Tamron 28-300mm f/3.5-6.3 Di VC PZD	£540/$850	Yes	10.7x	Yes	f/3.5-6.3	540g	0.49m	0.29x	67mm	7			
Tamron AF 28-300mm f/3.5-6.3 XR Di LD Macro	£330/$400	Yes	10.7x	No	f/3.5-6.3	435g	0.49m	0.34x	62mm	9			

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

WIDE-ANGLE PRIMES

	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 14mm f/2.8L II USM	£1650/$2100	Yes	None	No	f/2.8	645g	0.2m	0.15x	None	6			
Canon TS-E 17mm f/4L (tilt & shift)	£1600/$2150	Yes	None	No	f/4	820g	0.25m	0.14x	77mm	8	90	★★★★★	
Canon EF 20mm f/2.8 USM	£385/$540	Yes	None	No	f/2.8	405g	0.25m	0.14x	72mm	5	100	★★★	
Canon EF 24mm f/1.4L II USM	£1220/$1550	Yes	None	No	f/1.4	650g	0.25m	0.17x	77mm	8			
Canon EF 24mm f/2.8 IS USM	£455/$600	Yes	None	Yes	f/2.8	280g	0.2m	0.23x	58mm	7	100	★★★★	
Canon EF-S 24mm f/2.8 STM	£140/$150	Yes	None	No	f/2.8	125g	0.16m	0.27x	52mm	7	100	★★★	
Canon TS-E 24mm f/3.5L II (tilt & shift)	£1480/$1900	Yes	None	No	f/3.5	780g	0.21m	0.34x	82mm	8			
Canon EF 28mm f/1.8 USM	£380/$510	Yes	None	No	f/1.8	310g	0.25m	0.18x	58mm	7	67	★★★	
Canon EF 28mm f/2.8 IS USM	£390/$470	Yes	None	Yes	f/2.8	260g	0.23m	0.2x	58mm	7	100	★★★★	
Canon EF 35mm f/1.4L USM	£990/$1480	Yes	None	No	f/1.4	580g	0.3m	0.18x	72mm	8			
Canon EF 35mm f/2 IS USM	£400/$600	Yes	None	Yes	f/2	335g	0.24m	0.24x	67mm	8	100	★★★★	
Peleng 8mm f/3.5 Fisheye	£250/$215	Yes	None	No	f/3.5	400g	0.22m	0.13x	None				
Peleng 17mm f/2.8 Fisheye	£290/$290	Yes	None	No	f/2.8	630g	0.3m		None				
Samyang 8mm f/3.5 IF MC CSII DH Circular	£240/$260	Yes	None	No	f/3.5	435g	0.3m	N/S	None	6			
Samyang 10mm f/2.8 ED AS NCS CS	£340/$430	No	None	No	f/2.8	600g	0.25m	N/S	None	6			
Samyang 12mm f/2.8 ED AS NCS Diagonal	£360/$500	Yes	None	No	f/2.8	530g	0.2m	N/S	None	7			
Samyang 14mm f/2.8 IF ED UMC	£280/$320	Yes	None	No	f/2.8	560g	0.28m	N/S	None	6	74	★★★	
Samyang 16mm f/2 ED AS UMC CS	£375/$360	No	None	No	f/2	590g	0.2m	N/S	77mm	8			
Samyang 24mm f/1.4 ED AS UMC	£500/$530	Yes	None	No	f/1.4	680g	0.25m	N/S	77mm	8			
Samyang T-S 24mm f/3.5 ED AS UMC (tilt & shift)	£900/$800	Yes	None	No	f/3.5	680g	0.2m	N/S	82mm	8	90	★★★★	
Samyang 35mm f/1.4 AS UMC AE	£370/$420	Yes	None	No	f/1.4	660g	0.3m	N/S	77mm	8	100	★★★★	
Schneider 28mm f/4.5 PC-TS (tilt & shift)	£4980/$8300	Yes	None	No	f/4.5	1560g	0.15m	0.16x	122mm				
Sigma 4.5mm f/2.8 EX DC HSM Circular Fisheye	£580/$900	No	None	No	f/2.8	470g	0.14m	0.17x	None	6	87	★★★★	
Sigma 8mm f/3.5 EX DG Circular Fisheye	£600/$900	Yes	None	No	f/3.5	400g	0.14m	0.22x	None	6	87	★★★★	●
Sigma 10mm f/2.8 EX DC HSM Diagonal Fisheye	£480/$600	No	None	No	f/2.8	475g	0.14m	0.11x	None	7	87	★★★★	
Sigma 15mm f/2.8 EX DG Diagonal Fisheye	£475/$560	Yes	None	No	f/2.8	370g	0.15m	0.26x	None	7	44	★★★★	
Sigma 24mm f/1.4 DG HSM A	£700/$850	Yes	None	No	f/1.4	665g	0.25m	0.19x	77mm	9	105	★★★★★	
Sigma 28mm f/1.8 EX DG Asp Macro	£360/$430	Yes	None	No	f/1.8	500g	0.2m	0.34x	77mm	9	46	★★★	
Sigma 30mm f/1.4 DC HSM A	£370/$500	No	None	No	f/1.4	435g	0.3m	0.15x	62mm	9	100	★★★★	●
Sigma 35mm f/1.4 DG HSM A	£700/$900	Yes	None	No	f/1.4	665g	0.3m	0.19x	67mm	9	100	★★★★★	●
Voigtlander 20mm f/3.5 Color-Skopar SL II	£505/$500	Yes	None	No	f/3.5	240g	0.2m	N/S	52mm	9			
Voigtlander 28mm f/2.8 Color-Skopar	£350/$480	Yes	None	No	f/2.8	230g	0.22m	N/S	52mm	9			
Voigtlander 40mm f/2 Ultron	£445/$450	Yes	None	No	f/2	250g	0.38m	N/S	52mm	9			
Zeiss Distagon T* 15mm f/2.8 ZE	£2050/$2650	Yes	None	No	f/2.8	820g	0.25m	0.11x	95mm	9			
Zeiss Distagon T* 18mm f/3.5 ZE	£1000/$1195	Yes	None	No	f/3.5	510g	0.3m	0.08x	82mm	9	44	★★★★★	●
Zeiss Distagon T* 21mm f/2.8 ZE	£1300/$1545	Yes	None	No	f/2.8	720g	0.22m	0.2x	82mm	9			
Zeiss Distagon T* 25mm f/2 ZE	£1190/$1500	Yes	None	No	f/2	600g	0.25m	0.17x	67mm	9			
Zeiss Distagon T* 28mm f/2 ZE	£920/$1085	Yes	None	No	f/2	580g	0.24m	0.21x	58mm	9			
Zeiss Distagon T* 35mm f/1.4 ZE	£1390/$1545	Yes	None	No	f/1.4	850g	0.3m	0.2x	72mm	9			
Zeiss Distagon T* 35mm f/2 ZE	£750/$920	Yes	None	No	f/2	570g	0.3m	0.19x	58mm	9			

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Contacts

Canon www.canon.co.uk
Peleng www.digitaltoyshop.co.uk
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Schneider www.linhofstudio.com
Sigma www.sigma-imaging-uk.com
Tamron www.tamron.co.uk
Tokina www.tokinalens.com
Voigtlander www.robertwhite.co.uk
Zeiss www.zeiss.co.uk

STANDARD PRIMES

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

STANDARD PRIMES	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 40mm f/2.8 STM	£130/$150	Yes	None	No	f/2.8	130g	0.3m	0.18x	52mm	7	90	★★★★★	●
Canon TS-E 45mm f/2.8 (tilt & shift)	£1100/$1400	Yes	None	No	f/2.8	645g	0.4m	0.16x	72mm	8			
Canon EF 50mm f/1.2L USM	£995/$1450	Yes	None	No	f/1.2	580g	0.45m	0.15x	72mm	8	103	★★★★	
Canon EF 50mm f/1.4 USM	£240/$350	Yes	None	No	f/1.4	290g	0.45m	0.15x	58mm	8	103	★★★★	
Canon EF 50mm f/1.8 II	£90/$110	Yes	None	No	f/1.8	130g	0.45m	0.15x	52mm	5	103	★★★	
Canon EF 50mm f/1.8 STM	£100/$125	Yes	None	No	f/1.8	160g	0.35m	0.21x	49mm	7	103	★★★★★	●
Samyang 50mm f/1.4 AS UMC	£360/$390	Yes	None	No	f/1.4	575g	0.45m	N/S	77mm	8			
Schneider 50mm f/2.8 PC-TS (tilt & shift)	£2820/$3365	Yes	None	No	f/2.8	1400g	0.65m	0.11x	90mm	8			
Sigma 50mm f/1.4 EX DG HSM	£300/$500	Yes	None	No	f/1.4	520g	0.5m	0.14x	77mm	9			
Sigma 50mm f/1.4 DG HSM A	£700/$950	Yes	None	No	f/1.4	815g	0.4m	0.18x	77mm	9	103	★★★★★	●
Zeiss Planar T* 50mm f/1.4 ZE	£520/$525	Yes	None	No	f/1.4	380g	0.45m	0.15x	58mm	9			
Zeiss Otus 55mm f/1.4	£2700/$3990	Yes	None	No	f/1.4	1030g	0.5m	0.15x	77mm	9			

TELEPHOTO PRIMES

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

TELEPHOTO PRIMES	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 85mm f/1.2L II USM	£1500/$2000	Yes	None	No	f/1.2	1025g	0.95m	0.11x	72mm	8	103	★★★★	
Canon EF 85mm f/1.8 USM	£240/$370	Yes	None	No	f/1.8	425g	0.85m	0.13x	58mm	8	103	★★★★	
Canon TS-E 90mm f/2.8 (tilt & shift)	£1125/$1400	Yes	None	No	f/2.8	565g	0.5m	0.29x	58mm	8			
Canon EF 100mm f/2 USM	£360/$500	Yes	None	No	f/2	460g	0.9m	0.14x	58mm	8	46	★★★★★	
Canon EF 135mm f/2L USM	£700/$1000	Yes	None	No	f/2	750g	0.9m	0.19x	72mm	8			
Canon EF 200mm f/2L IS USM	£4400/$5700	Yes	None	Yes	f/2	2520g	1.9m	0.12x	52mm	8	98	★★★★★	
Canon EF 200mm f/2.8L II USM	£570/$750	Yes	None	No	f/2.8	765g	1.5m	0.16x	72mm	8	98	★★★★	
Canon EF 300mm f/2.8L IS II USM	£4800/$6100	Yes	None	Yes	f/2.8	2400g	2.0m	0.18x	52mm	9	54	★★★★★	
Canon EF 300mm f/4L IS USM	£960/$1350	Yes	None	Yes	f/4	1190g	1.5m	0.24x	77mm	8	64	★★★★	
Canon EF 400mm f/2.8L IS II USM	£7700/$10,000	Yes	None	Yes	f/2.8	3850g	2.7m	0.17x	52mm	9	54	★★★★★	
Canon EF 400mm f/4 DO IS II USM	£7000/$6900	Yes	None	Yes	f/4	2100g	3.3m	0.13x	52mm	9			
Canon EF 400mm f/5.6L USM	£920/$1250	Yes	None	No	f/5.6	1250g	3.5m	0.12x	77mm	8	94	★★★★	
Canon EF 500mm f/4L IS II USM	£6900/$9000	Yes	None	Yes	f/4	3190g	3.7m	0.15x	52mm	9			
Canon EF 600mm f/4L IS II USM	£8900/$11,500	Yes	None	Yes	f/4	3920g	4.5m	0.15x	52mm	9			
Canon EF 800mm f/5.6L IS USM	£9900/$13,000	Yes	None	Yes	f/5.6	4500g	6.0m	0.14x	52mm	8			
Samyang 85mm f/1.4 IF MC	£230/$270	Yes	None	No	f/1.4	513g	1.0m	N/S	72mm	8			
Samyang 135mm f/2 ED UMC	£380/$550	Yes	None	No	f/2	830g	0.8m	N/S	77mm	9			
Samyang 500mm MC IF f/6.3 Mirror	£125/$150	Yes	None	No	f/6.3	705g	2.0m	N/S	95mm	0			
Samyang 500mm MC IF f/8 Mirror	£105/$110	Yes	None	No	f/6.3	320g	1.7m	N/S	72mm	0			
Samyang 800mm MC IF f/8 Mirror	£170/$190	Yes	None	No	f/8	870g	3.5m	N/S	30mm	0			
Schneider 90mm f/2.8 PC-TS (tilt & shift)	£2805/$3180	Yes	None	No	f/2.8	1110g	0.57m	0.25x	104mm	6			
Sigma 85mm f/1.4 EX DG HSM	£650/$970	Yes	None	No	f/1.4	725g	0.85m	0.12x	77mm	9	103	★★★★★	
Sigma APO 300mm f/2.8 EX DG HSM	£2280/$3400	Yes	None	No	f/2.8	2400g	2.5m	0.13x	46mm	9	98	★★★★	
Sigma APO 500mm f/4.5 EX DG HSM	£3760/$5000	Yes	None	No	f/4.5	3150g	4.0m	0.13x	46mm	9			
Sigma APO 800mm f/5.6 EX DG HSM	£4300/$6700	Yes	None	No	f/5.6	4.9kg	7.0m	0.11x	46mm	9	21	★★★★	
Zeiss Planar T* 85mm f/1.4 ZE	£980/$985	Yes	None	No	f/1.4	670g	1.0m	0.1x	72mm	9			
Zeiss Apo Sonnar T* 135mm f/2 ZE	£1650/$1825	Yes	None	No	f/2	930g	0.8m	0.25x	77mm	9			

MACRO

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

MACRO	Price	Full-frame	Max zoom	Image stabilization	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 50mm f/2.5 Compact Macro	£205/$300	Yes	None	No	f/2.5	280g	0.23m	0.5x	52mm	6	50	★★★	
Canon EF-S 60mm f/2.8 Macro USM	£320/$470	No	None	No	f/2.8	335g	0.20m	1.0x	52mm	7	102	★★★	
Canon MP-E65mm f/2.8 1-5x Macro	£850/$1050	Yes	None	No	f/2.8	710g	0.24m	5.0x	58mm	6	50	★★★★	
Canon EF 100mm f/2.8 Macro USM	£375/$530	Yes	None	No	f/2.8	600g	0.31m	1.0x	58mm	8	102	★★★★	
Canon EF 100mm f/2.8L Macro IS USM	£635/$900	Yes	None	Yes	f/2.8	625g	0.3m	1.0x	67mm	9	102	★★★★	
Canon EF 180mm f/3.5L Macro USM	£1050/$1400	Yes	None	No	f/3.5	1090g	0.48m	1.0x	72mm	8	69	★★★★	
Sigma Macro 70mm f/2.8 EX DG	£360/$450	Yes	None	No	f/2.8	525g	0.26m	1.0x	62mm	9	85	★★★	
Sigma Macro 105mm f/2.8 EX DG OS HSM	£380/$770	Yes	None	Yes	f/2.8	725g	0.31m	1.0x	62mm	9	102	★★★★★	● ●
Sigma APO Macro 150mm f/2.8 EX DG OS HSM	£670/$1100	Yes	None	Yes	f/2.8	1150g	0.38m	1.0x	72mm	9	102	★★★★	
Sigma APO Macro 180mm f/2.8 EX DG OS HSM	£1190/$1700	Yes	None	Yes	f/2.8	1640g	0.47m	1.0x	86mm	9	102	★★★★	
Tamron SP AF 60mm f/2 Di II LD (IF) Macro	£320/$525	No	None	No	f/2	350g	0.23m	1.0x	55mm	7	102	★★★	
Tamron SP AF 90mm f/2.8 Di Macro	£290/$500	Yes	None	No	f/2.8	400g	0.29m	1.0x	55mm	9	102	★★★	
Tamron SP AF 90mm f/2.8 Di Macro VC USD	£380/$750	Yes	None	Yes	f/2.8	550g	0.3m	1.0x	58mm	9	102	★★★★	
Tamron SP AF 180mm f/3.5 Di Macro	£700/$740	Yes	None	No	f/3.5	985g	0.47m	1.0x	72mm	7	69	★★★	
Tokina 100mm f/2.8 AT-X PRO Macro	£370/$380	Yes	None	No	f/2.8	540g	0.3m	1.0x	55mm	9	50	★★★	
Zeiss Makro Planar T* 50mm f/2 ZE	£920/$1085	Yes	None	No	f/2	570g	0.24m	0.5x	67mm	9			
Zeiss Makro Planar 100mm f/2 T* ZE	£1300/$1545	Yes	None	No	f/2	680g	0.44m	0.5x	67mm	9	50	★★★★	

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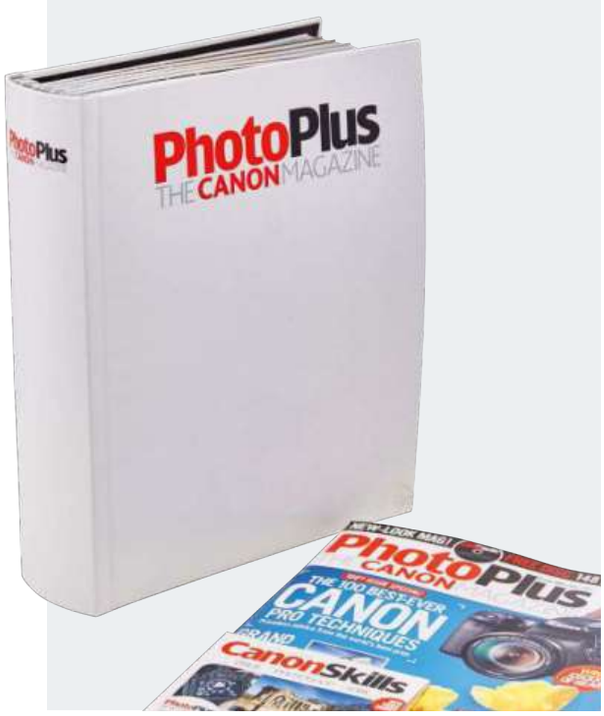

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October 2015

MAKE cash with your Canon ● Apprentice: shooting waterfalls ● Interview: Drew Gibson ● Super Test: entry-level DSLRs ● Mini Test: gimbal heads ● Canon School: metering ● My kit: David Clapp ● David Noton: Canadian Rockies ● Projects on fine art nudes, make your own pin-hole lens, shoot fine art stock shots, create a time-lapse movie ● Free family portraits ebook worth £7!

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CANON 5D S/R full review ● The fine art of black and white ● Apprentice: street photography ● Interview: Vincent Laforet ● Super Test: portrait prime lenses ● Mini Test: monopods ● Canon School: shutter speeds ● My kit: Victoria Hillman ● David Noton: Paris ● Projects on photographing festivals, watery reflections, multiple exposures, monochrome photography ● Free B&W ebook worth £8!

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CANON challenge: manual vs auto settings ● Apprentice: Great British countryside shots ● Interview: Harry Borden ● Super Test: macro lenses ● Mini Test: variable ND filters ● Canon School: aperture control ● My Kit: Oliver Wright ● David Noton: USA ● Canon EOS M3 test ● Projects on panoramas, close-up flowers, high-key portraits, flash-pan action and the Harris Shutter effect ● Portrait posing guide

Issue 101
June 2015

GREAT shots, in any weather ● Apprentice: fashion portraits ● Interview: Tim Clayton ● Super Test: printers vs labs ● Mini Test: flash modifiers ● Canon School: how to hold your camera ● My Kit: Brett Harkness ● David Noton: Iceland ● Canon EOS 750D & 760D ● Canon EF 11-24mm f/4L USM ● Projects on long exposures, composition, natural-light portraits, camera drag and still life ● Portrait posing guide

Issue 100
May 2015

THE 100 best-ever Canon pro techniques ● Apprentice: travel architecture ● Interview: Art Wolfe ● Super Test: wide-angle prime lenses ● Mini Test: radio flash triggers ● Canon School: exposure ● My Kit: Alex Hyde ● David Noton: Vietnam ● Canon EF 100-400 f/4.5-5.6L IS II USM ● Projects on in-camera HDR, polarizer filters, free lensing, bounce flash and understanding perspective ● Free! Portrait posing guide

Issue 99
Spring 2015

TOP Canon Secrets – 24 Canon tips declassified ● Apprentice: white-water kayaking ● Super test: studio lights ● Macro photography eight-page guide ● Help me buy… low-cost macro alternatives ● Workshop: learn to use all the Canon metering modes ● Masterclass: shoot magic mirror images ● Free! 28-page *Practical Photoshop* digital magazine ● Segmented landscape project

Issue 98
April 2015

NEW Canon 50Mp EOS 5DS big preview guide ● Lenses for wildlife – pros share the tricks of the trade ● Apprentice: how to shoot epic landscape scenes ● Super Test: fast telephoto zooms and primes ● Hands-on previews: 750D and 760D ● Workshop: Manual mode explained ● Masterclass: create incredible time-stack images ● Painting with light and smoke projects

Issue 97
March 2015

LENSES for landscapes – learn new techniques to quickly transform your shots ● Apprentice: take colourful close-up shots ● Master movement eight-page guide ● Super Test: sturdy tripods ● Help me buy a… sensor cleaning kit ● Workshop: how the histogram can help improve your images ● Masterclass: take pro-looking portraits at home ● Free! Home studio lighting guide

Issue 96
February 2015

NO MORE bad portraits! Camera and lens skills for great people pictures ● Apprentice: the need for Speedlites ● Buyers' guide – the lowdown on all 152 currently available Canon-compatible lenses ● Super Test: telephoto zooms from £100 ● Help me buy a… canvas print ● Workshop: get pin-sharp shots every time ● Masterclass: moon-lit landscapes ● Add motion blur with an ND filter

Issue 95
January 2015

LEARN to love black & white ● Canon Gear of the Year – the very best Canon D-SLRs, lenses and photo accessories from 2014! ● Apprentice: freeze snowboarders in action inside a snow centre ● Xmas wish list buyers' guide ● Ultimate test: Canon 7D Mark II ● Workshop: master long exposures ● Masterclass: create great child portrait compilations ● Create your own photo calendar

Issue 94
December 2014

DEPTH of field made easy! Learn the easy way to control depth of field with our essential aperture, focusing and focal length techniques ● Apprentice: shoot the city night lights ● D-SLR eight-page buyers' guide ● Super Test: big telephoto zooms ● Held me buy a… tripod head ● Workshop: picture styles ● Masterclass: shoot in the twilight zone ● Free! Sharper shots mini-mag

Issue 93
November 2014

ESSENTIAL D-SLR settings! Key Canon camera controls that will instantly improve your shots ● Apprentice: dazzling dance photos ● Canon EOS 7D Mk II eight-page guide ● Super Test: standard lens upgrades ● Help me buy a… screen shade ● Workshop: In-camera Wi-Fi ● Masterclass: get the best from your lenses ● Photo projects: brilliant mono images plus capture close-ups of eyes

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7D Mark II Body	£1299

CUSTOMER REVIEW: 7D Mk II Digital SLR Camera Body
★★★★★ 'Fanastic for photographing wildlife' *cotters – Cheshire*

Canon PRO EOS 6D

6D From **£1133**

6D Body	£1133

CUSTOMER REVIEW: 6D Digital SLR Camera Body
★★★★★ 'Should have bought it sooner' *Devon dumpling – North Devon*

Canon PRO EOS 5D Mk III

5D Mark III From **£2249**

5D Mark III Body	£2249

CUSTOMER REVIEW: 5D Mark III Digital SLR Camera Body
★★★★★ '2 years in review' *mike-o – Sussex*

Canon PRO EOS 5DS

EOS 5DS From **£2999**

NEW 5DS Body	£2999
NEW 5DS R Body	£3199

Read our 5DS review on our blog at wex.co.uk/blog

Canon PRO EOS 1D X

1D X Body **£4399**

1D X Body	£4399

CUSTOMER REVIEW: 1D X Digital SLR Camera Body
★★★★★ 'A brilliant piece of kit' *Steve F – North Yorkshire*

Cashback offer* ends 31.1.16

DSLR Lenses – Canon, Sigma & Tamron

Canon PRO | SIGMA | TAMRON

EF 40mm f2.8 STM
£679

EF 200-400mm f4 L IS USM
with internal 1.4x extender
£8598

EF 24-70mm
f2.8 L USM II
£1400

EF 70-200mm
f2.8 L IS USM II
£1499

35mm
f1.4 DG HSM
£636

70-200mm
f2.8 SP Di VC USD
£929

CANON	TS-E 17mm f4.0 L	£1599
CANON	EF 24mm f1.4 L USM II	£1049
Inc. £150 Cashback*	price you pay today	£1199
CANON	EF 24mm f2.8 IS USM	£410
Inc. £45 Cashback*	price you pay today	£455
CANON	EF 35mm f1.4 L USM	£839
Inc. £150 Cashback*	price you pay today	£989
CANON	TS-E 45mm f2.8	£1099
CANON	EF 50mm f1.2 L USM	£885
Inc. £110 Cashback*	price you pay today	£995
CANON	EF 50mm f1.4 USM	£203
Inc. £35 Cashback*	price you pay today	£238
CANON	EF-S 60mm f2.8 USM Macro	£314
CANON	MP-E 65mm f2.8 1-5x Macro	£853
CANON	EF 85mm f1.2 L USM II	£1349
Inc. £150 Cashback*	price you pay today	£1499
CANON	EF 100mm f2.8 L IS USM Macro	£560
Inc. £75 Cashback*	price you pay today	£635
CANON	EF 135mm f2.0 L USM	£699
CANON	EF 180mm f3.5 L USM Macro	£1049
CANON	EF 200mm f2.8 L USM II	£569
CANON	EF 300mm f4.0 L IS USM	£959
CANON	EF 400mm f5.6 L USM	£919
CANON	EF-S 15-85mm f3.5-5.6 IS USM	£509
CANON	EF 16-35mm f2.8 L USM II	£1078

CANON	EF 17-40mm f4.0 L USM	£499
CANON	EF-S 18-200mm f3.5-5.6 IS	£359
CANON	EF-S 17-55mm f2.8 IS USM	£502
CANON	EF-S 18-55mm f3.5-5.6 IS STM	£169
CANON	EF-S 18-135mm f3.5-5.6 IS STM	£304
CANON	EF 24-70mm f4 L IS USM Lens	£699
CANON	EF 24-105mm f3.5-5.6 IS STM	£330
Inc. £45 Cashback*	price you pay today	£375
CANON	EF 24-105mm f4.0 L IS USM	£563
Inc. £75 Cashback*	price you pay today	£638
CANON	EF 28-135mm f3.5-5.6 IS USM	£359
CANON	EF 28-300mm f3.5-5.6 L IS USM	£1795
CANON	EF 70-200mm f4.0 L IS USM	£805
CANON	EF 70-300mm f4.0-5.6 L IS USM	£368
CANON	EF 75-300mm f4.0-5.6 USM III	£146
CANON	EF 100-400mm f4.5-5.6 L IS II USM	£1899
CANON	EF 11-24mm f4 L USM	£2799
CANON	TS-E 24mm f3.5 L II Lens	£1479
CANON	EF 85mm f1.8 USM	£202
Inc. £35 Cashback*	price you pay today	£237
CANON	EF 35mm f2 IS USM	£399
CANON	EF 28mm f2.8 IS USM	£389
CANON	EF 600mm f4 L IS II USM	£8895
CANON	NEW EF 35mm f1.4 L II USM	£1799

SIGMA - Canon Fit Lenses

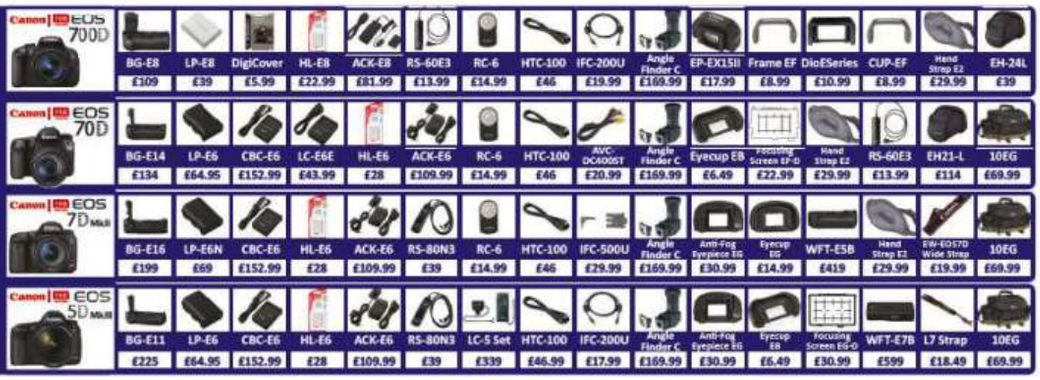
SIGMA	50mm f1.4 EX DG HSM	£319
SIGMA	85mm f1.4 EX DG HSM	£649
SIGMA	10-20mm f3.5 EX DC HSM	£384
SIGMA	10-20mm f4.0-5.6 EX DC HSM	£345
SIGMA	17-70mm f2.8-4 DC OS	£329
SIGMA	18-200mm f3.5-6.3 DC OS HSM II	£239
SIGMA	18-250mm f3.5-6.3 DC OS HSM Macro	£299
SIGMA	18-300mm f3.6-6.3 C DC Macro	£362
SIGMA	70-300mm f4.0-5.6 Macro DG	£98
SIGMA	120-300mm f2.8 OS	£2699
SIGMA	150-500mm f5.0-6.3 DG OS HSM	£569
SIGMA	150-600mm f5.0-6.3 S DG OS HSM	£1449
SIGMA	150-600mm f5.0-6.3 C DG OS HSM	£899
SIGMA	NEW 24-35mm f2 DG HSM A	£949

TAMRON - Canon Fit Lenses

TAMRON	180mm f3.5 SP AF Di Macro	£629
TAMRON	17-50mm f2.8 XR Di II VC	£329
TAMRON	18-270mm f3.5-6.3 Di II VC PZD	£269
TAMRON	16-300mm f3.5-6.3 Di II VC PZD Macro	£399
TAMRON	28-300mm f3.5-6.3 Di VC PZD	£529
TAMRON	24-70mm f2.8 Di VC	£679

Cashback offer* ends 26.10.15

Canon DSLR Accessories



EOS 700D															
BG-E8	LP-E8	DigiCover	HL-E8	ACK-E8	RS-60E3	RC-6	HTC-100	IFC-200U	Angle Finder C	EP-EX15II	Frame EF	DioESeries	CUP-EF	Hand Strap E2	EH-24L
£109	£39	£5.99	£22.99	£81.99	£13.99	£14.99	£46	£19.99	£169.99	£17.99	£8.99	£10.99	£8.99	£29.99	£39

EOS 70D															
BG-E14	LP-E6	CBC-E6	LC-E6E	HL-E6	ACK-E6	RC-6	HTC-100	AVC-DC400ST	Angle Finder C	Eyecup EB	Focusing Screen EF-D	Hand Strap E2	RS-60E3	EH21-L	10EG
£134	£64.95	£152.99	£43.99	£28	£109.99	£14.99	£46	£20.99	£169.99	£6.49	£22.99	£29.99	£13.99	£114	£69.99

EOS 7D Mk II															
BG-E16	LP-E6N	CBC-E6	HL-E6	ACK-E6	RS-80N3	RC-6	HTC-100	IFC-500U	Angle Finder C	Anti-Fog Eyepiece EG	Eyecup EG	WFT-E5B	Hand Strap E2	EW-EOS7D Wide Strap	10EG
£199	£69	£152.99	£28	£109.99	£39	£14.99	£46	£29.99	£169.99	£30.99	£14.99	£419	£29.99	£19.99	£69.99

EOS 5D Mk III															
BG-E11	LP-E6	CBC-E6	HL-E6	ACK-E6	RS-80N3	LC-5 Set	HTC-100	IFC-200U	Angle Finder C	Anti-Fog Eyepiece EG	Eyecup EB	Focusing Screen EG-D	WFT-E7B	L7 Strap	10EG
£225	£64.95	£152.99	£28	£109.99	£39	£339	£46.99	£17.99	£169.99	£30.99	£6.49	£30.99	£599	£18.49	£69.99

MT-24EX Macrolite
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MR-14EX Macrolite
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430EX II
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x·rite

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64GB	£99

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64GB SDXC	£59.95

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Whistler:

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BP 450 AW	£286

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Photo Sport BP:

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Manfrotto Imagine More

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Designed to hold a digital SLR with battery grip and mid-range zoom lens attached, 3-4 additional lenses, a flashgun and iPad/tablet.

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3N1-35	£199

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Perfect for carrying compact digital SLR or compact system camera (CSC) with lens attached, plus several additional lenses, flashes, accessories and a 15" laptop.

Anvil:

Anvil Slim	£189.99
Anvil Super	£189.99
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Billingham

Hadley: Canvas/Leather: *Khaki/Tan, Black/Tan, Black/Black.* FibreNyte/Leather: *Khaki/Tan, Sage/Tan, Black/Black.*

Digital	£109
Small	£139
Large	£154
Pro Original	£169
Imperial Blue from	£159

Hadley Pro Original *Canvas Khaki/Tan*

Hadley Digital *Imperial Blue*

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MT190XPRO3
- 160cm Max Height
- 9cm Min Height

MT190XPRO3	£129
MT190XPRO4	£159
MT190CXPRO3 Carbon Fibre	£229
MT190CXPRO4 Carbon Fibre	£249
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GH1 Ideal for use with lenses up to 600mm

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- 146.5cm Max Height
- 9.4cm Min Height

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SLR Zoom

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HOYA

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55mm	£29	46mm	£12.99
58mm	£29	49mm	£11.99
62mm	£32	52mm	£12.99
67mm	£36	55mm	£12.99
72mm	£42	58mm	£14.99
77mm	£46	62mm	£17.99
82mm	£52	67mm	£17.99
HMC UV(C) Filters:		72mm	£19.99
37mm	£12.99	77mm	£24.99
		82mm	£26.99

LEE Filters

Long Exposure Filters:
Big Stopper 10x £99.99
Little Stopper 6x £99

TIFFEN

ND 3.0 10 Stop Filters:

52mm	£14
55mm	£16
58mm	£19
62mm	£24
67mm	£24
72mm	£39
77mm	£39
82mm	£59

GPUDZ

A lens cloth that tucks into a handy pouch, with attached snap hook for clipping to your camera bag. Black, Blue lightning, Camo or Desert Camo.

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10x10	£7.99

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£349	£179	L478 DR £299.99

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PocketWizard

Plus III Set £229

Lastolite

Ezybox Softbox From £44.99

wex pro

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elinchrom

D-Lite One Rx Kit	£425
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Canon

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Originals:
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Colours 14ml each £9.99

CLi42 Pixma Pro 100
Originals:
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Compatibles:
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Colours 14ml each £3.99

CLi8 Pixma Pro 9000
Originals:
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Colours 14ml each £9.99
Compatibles:
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Colours 14ml each £3.99

PGi9 Pixma Pro 9500
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Colours 14ml each £8.99
Compatibles:
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PGi520 Black 19ml £9.99
CLi521 Colours 9ml £8.99
PGi525/CLi526 Set of 5 £42.99
PGi525 Black 19ml £9.99
CLi526 Colours 9ml £8.99
PGi550/CLi551 Set of 5 £37.99
PGi550 Black 15ml £9.99
CLi551 Colours 7ml £7.99
PGi550/CLi551XL Set of 5 £54.99
PGi550XL Black 22ml £11.99
CLi551XL Colours 11ml £10.99
PGi540 Black 8ml £10.99
PGi540XL Black 21ml £15.99
CL541 Colour 8ml £13.99
CL541XL Colour 15ml £15.99
PGi545XL Black 15ml £13.99
CL546XL Colour 13ml £15.99
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CLi8 Colours 13ml £3.99
PGi5/CLi8 Set of 5 £19.99
PGi520 Black 19ml £4.99
CLi521 Colours 9ml £3.99
PGi520/CLi521 Set of 5 £19.99
PGi525 Black 19ml £4.99
CLi526 Colours 9ml £3.99
PGi525/CLi526 Set of 5 £19.99
PGi550XL Black 25ml £4.99
CLi551XL Colours 12ml £3.99
PGi550/CLi551XL Set of 5 £19.99
BCi6 Colours 15ml £2.99
PG40 Black 28ml £12.99
CL41 Colour 24ml £16.99
PG50 Black 28ml £12.99
CL51 Colour 24ml £14.99
PG510 Black 11ml £13.99
CL511 Colour 11ml £15.99
PG512 Black 18ml £13.99
CL513 Colour 15ml £15.99
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PG545XL Black 15ml £11.99
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No.16 Black 12ml £3.99
No.16 Colours 12ml each £3.99

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No.18XL Set of 4 £42.99
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No.18XL Colours 6.6ml each £11.99
Compatibles:
No.18 Set of 4 £14.99
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No.18 Colours 12ml each £3.99

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Originals:
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No.24 Colours 4.6ml each £7.99
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No.24 Black 7ml £3.99
No.24 Colours 7ml each £3.99

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No.26 Colours 4.5ml each £7.99
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No.26XL Colours 9.7ml each £13.99
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Compatibles:
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Colours 13ml each £3.99

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Grafton 6x4 200 photos £9.99
Grafton 7x5 200 photos £13.99
Baby 6x4 200 photos £9.99
Travel 6x4 200 photos £8.99

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Frisco 8x6 seven colours £2.79
Frisco 9x6 seven colours £3.49
Frisco 10x8 seven colours £3.79
Frisco 12x8 seven colours £4.59
Frisco A4 seven colours £3.99
Frisco A3 seven colours £8.99

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Emilia 7x5 two colours £5.99
Emilia 8x6 two colours £6.99
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Emilia 12x8 two colours £8.99
Rio 6x4 four colours £5.99
Rio 7x5 four colours £6.99
Rio 8x6 four colours £7.99
Rio 10x8 four colours £8.99
Rio 12x8 four colours £9.99

More Ink Cartridges...

EPSON

T0711-T0714 Cheetah Inks
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Colours 5.5ml each £8.99
Compatibles:
Set of 4 £14.99
Black 7.4ml £4.99
Colours 5.5ml each £3.99

T0791-T0796 Owl Inks
Originals:
Set of 6 £72.99
Colours 11.1ml each £12.99
Compatibles:
Set of 6 £19.99
Colours 11.1ml each £3.99

T0801-T0806 Hummingbird Inks
Originals:
Set of 6 £49.99
Colours 7.4ml each £8.99
Compatibles:
Set of 6 £19.99
Colours 7.4ml each £3.99

T0871-T0879 Flamingo Inks
Originals:
Set of 8 £66.99
Colours 11.4ml each £9.99
Compatibles:
Set of 8 £27.99
Colours 11.4ml each £3.99

T0961-T0969 Husky Inks
Originals:
Set of 8 £69.99
Colours 11.4ml each £8.99
Compatibles:
Set of 8 £27.99
Colours 11.4ml each £3.99

T1571-T1579 Turtle Inks
Originals:
Set of 8 £149.99
Colours 25.9ml each £18.99

T7601-T7609 Killer Whale
Originals:
Set of 9 £169.99
Colours 25.9ml each £18.99

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Originals:
No.38 Colours 27ml each £26.99
No.62XL Black 12ml £21.99
No.62XL Colour 11.5ml £23.99
No.300 Black 4ml £10.99
No.300 Colour 4ml £12.99
No.301 Black 3ml £9.99
No.301 Colour 3ml £11.99
No.301XL Black 8ml £18.99
No.301XL Colour 6ml £18.99
No.350 Black 4.5ml £11.99
No.351 Colour 3.5ml £14.99
No.363 Black 6ml £13.99
No.363 C/M/Y/PC/PM each £9.99
No.363 SET OF 6 £39.99
No.364 Black 6ml £7.99
No.364 PB/C/M/Y 3ml each £6.99
No.364 SET OF 4 £21.99
No.364XL Black 14ml £13.99
No.364XL PB/C/M/Y 6ml each £12.99
No.364XL SET OF 4 £49.99
No.920XL SET OF 4 £46.99
No.932XL SET OF 4 £43.99
No.950XL SET OF 4 £69.99
Compatibles:
No.15 Black 46ml £4.99
No.21 Black 10ml £7.99
No.22 Colour 21ml £11.99
No.45 Black 45ml £4.99
No.56 Black 24ml £9.99
No.57 Colour 24ml £12.99
No.78 Colour 36ml £9.99
No.110 Colour 12ml £10.99
No.300XL Black 18ml £14.99
No.300XL Colour 18ml £16.99
No.301XL Black 15ml £14.99
No.301XL Colour 18ml £16.99
No.337 Black 21ml £10.99
No.338 Black 21ml £10.99
No.339 Black 34ml £12.99
No.343 Colour 21ml £12.99
No.344 Colour 21ml £14.99
No.348 Photo 21ml £12.99
No.350XL Black 30ml £14.99
No.351XL Colour 20ml £16.99
No.363 Black 20ml £6.99
No.363 Colours 6ml each £4.99
No.363 SET OF 6 £24.99
No.364 Black 10ml £4.99
No.364 Colours 5ml each £3.99
No.364 SET OF 4 £15.99
No.364XL Black 18ml £8.99
No.364XL Colours 11ml each £7.99
No.364XL SET OF 4 £31.99
No.920XL SET OF 4 £19.99
No.932XL SET OF 4 £29.99
No.940XL SET OF 4 £29.99
No.950XL SET OF 4 £29.99

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We carry a massive range of papers (sheets & rolls) at competitive prices. Below are some examples of the selection we stock.

Ilford Galerie

Photo Glossy 160gsm:
6x4 50 sheets +50 FREE £3.99
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Photo Satin 200gsm:
6x4 100 sheets +100 FREE £9.99
A4 100 sheets +100 FREE £19.99
Photo Glossy 200gsm:
6x4 100 sheets +100 FREE £9.99
A4 20 sheets £6.99
Premium Pearl 270gsm:
6x4 50 sheets +50 FREE £6.99
A4 20 sheets +20 FREE £8.99
Premium Gloss 270gsm:
A4 25 sheets OFFER £8.99
A3 25 sheets OFFER £15.99
A3+ 25 sheets OFFER £19.99
Smooth Pearl 310gsm:
6x4 100 sheets £14.99
7x5 100 sheets £17.99
A4 25 sheets £12.99
A4 100 sheets £39.99
A4 250 sheets £84.99
A3 25 sheets £25.99
A3+ 25 sheets £35.99
17" Roll 30 metres £69.99
24" Roll 30 metres £96.99
Smooth Gloss 310gsm:
6x4 100 sheets £14.99
7x5 100 sheets £17.99
A4 25 sheets £12.99
A4 100 sheets £39.99
A3 25 sheets £25.99
A3+ 25 sheets £35.99
Premium Matt Duo 200 gsm:
A4 50 sheets £12.99
A3+ 50 sheets £34.99
Heavy Duo Matt 310gsm:
A4 50 sheets £17.99
A3+ 50 sheets £44.99
Gold Fibre Silk 310gsm:
A4 50 sheets £37.99
A3+ 50 sheets £89.99
Gold Mono Silk 270gsm:
A4 25 sheets £16.99
A3+ 25 sheets £42.99

Fotospeed

Smooth Pearl 290gsm:
6x4 100 sheets £12.99
7x5 100 sheets £16.99
A4 50 sheets £17.99
A3 50 sheets £34.99
A3+ 25 sheets £25.99
Panoramic 25 sheets £26.99
17" Roll 30 metres £68.99
24" Roll 30 metres £85.99
PF Lustre 275gsm:
6x4 100 sheets £12.99
7x5 100 sheets £16.99
A4 50 sheets £17.99
A3 25 sheets £35.99
A3+ 50 sheets £47.99
Panoramic 25 sheets £26.99
17" Roll 30 metres £69.99
24" Roll 30 metres £86.99
PF Gloss 270gsm:
A4 50 sheets £17.99
A3 50 sheets £35.99
A3+ 50 sheets £47.99
Panoramic 25 sheets £26.99
Matt Ultra 240gsm:
A4 50 sheets £12.99
A3 50 sheets £26.99
A3+ 50 sheets £35.99
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Baryta A4 20 sheets £21.99
Bartya A3 20 sheets £42.99
Etching A4 25 sheets £19.99
Etching A3 25 sheets £34.99
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Smooth Cotton A3 25 sh £51.99

Canon

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A4 20 sheets £11.99
A3 20 sheets £27.99
A3+ 20 sheets £36.99
PT-101 Pro Platinum 300gsm:
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A4 20 sheets £16.99
A3 20 sheets £37.99
A3+ 10 sheets £24.99
SG-201 Semi-Gloss 260gsm:
6x4 50 sheets £9.99
A4 20 sheets £11.99
A3 20 sheets £27.99
A3+ 20 sheets £42.99
LU-101 Pro Lustre 260gsm:
A4 50 sheets £14.99
A3 50 sheets £32.99
A3+ 50 sheets £49.99

Permajet

Smooth Pearl 280gsm:
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7x5 100 sheets £18.99
A4 50 sheets £18.99
A4 50 sheets £18.99
A3 50 sheets £35.99
A3+ 25 sheets £28.99
17" Roll 30 metres £64.99
24" Roll 30 metres £89.99
Ultra Pearl 295gsm:
6x4 100 sheets £14.99
7x5 100 sheets £20.99
A4 25 sheets £12.99
A3 25 sheets £22.99
A3+ 25 sheets £30.99
13" Roll 10 metres £21.99
17" Roll 30 metres £68.99
24" Roll 30 metres £92.99
Titanium Lustre 280gsm:
A4 25 sheets £22.99
A3 25 sheets £44.99
A3+ 25 sheets £62.99
Oyster 271gsm:
6x4 100 sheets £12.99
7x5 100 sheets £18.99
A4 50 sheets £18.99
A3 25 sheets £22.99
A3+ 25 sheets £28.99
13" Roll 10 metres £26.99
17" Roll 30 metres £64.99
24" Roll 30 metres £89.99
Gloss 271gsm:
6x4 100 sheets £12.99
7x5 100 sheets £18.99
A4 50 sheets £18.99
A3 25 sheets £22.99
A3+ 25 sheets £28.99
13" Roll 10 metres £26.99
17" Roll 30 metres £64.99
24" Roll 30 metres £89.99
Matt Plus 240gsm:
6x4 100 sheets £10.99
7x5 100 sheets £13.99
A4 50 sheets £13.99
A3 25 sheets £17.99
A3+ 25 sheets £22.99
13" Roll 10 metres £24.99
17" Roll 30 metres £42.99
24" Roll 30 metres £58.99
Matt Proofing 160gsm:
A4 150 sheets £18.99
A3 75 sheets £22.99
17" Roll 30 metres £26.99
24" Roll 30 metres £36.99
Double Sided Matt 250gsm:
A4 100 sheets £24.99
A3 50 sheets £27.99
Fine Art / Fibre Base Papers:
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FB Gold Silk A3 25 sh £47.99
FB Distinction A4 25 sh £25.99
FB Distinction A3 25 sh £48.99
FB Royal A4 25 sheets £28.99
FB Royal A3 25 sheets £56.99
FB Gloss A4 25 sheets £26.99
FB Gloss A3 25 sheets £51.99
FB Matt A4 25 sheets £19.99
FB Matt A3 25 sheets £38.99
Artist A4 25 sheets £22.99
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Museum A4 25 sheets £25.99
Museum A3 25 sheets £48.99
Parchment A4 25 sheets £22.99
Parchment A3 25 sheets £39.99
Omega A4 25 sheets £24.99
Omega A3 25 sheets £46.99
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Portrait A3 25 sheets £53.99
Portrait White A4 25 sh £26.99
Portrait White A3 25 sh £49.99

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A4 15 sheets +15 FREE £9.99
A3 20 sheets £29.99
A3+ 20 sheets OFFER £24.99
Ultra Gloss 300gsm:
6x4 50 sheets £9.99
7x5 50 sheets £12.99
A4 15 sheets £11.99
Premium Semi-Gloss 251gsm:
6x4 50 sheets £8.99
A4 20 sheets £14.99
A3 20 sheets £29.99
A3+ 20 sheets OFFER £24.99
Archival Matte 192gsm:
A4 50 sheets £14.99
A3 50 sheets £33.99
A3+ 50 sheets £44.99
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A4 50 sheets £11.99
A3 50 sheets £34.99
A3+ 50 sheets £44.99

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800X (120MB/s)

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32GB	£32.99
64GB	£47.99
128GB	£94.99

Sandisk Extreme Pro

1066X (160MB/s)

16GB	£33.99
32GB	£47.99
64GB	£82.99
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32GB	£12.99
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Delkin USB2 Card Reader	£9.99
Delkin USB3 Card Reader	£19.99
Delkin SD Card (x8) Case	£6.99
Delkin CF Card (x4) Case	£6.99

Batteries

Replacement rechargeable Li-ion batteries, manufactured by Hahnel or Blumax. All come with a two-year guarantee.

NB-2L/LH for Canon	£9.99
NB-4L for Canon	£9.99
NB-5L for Canon	£9.99
NB-6L for Canon	£9.99
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NB-9L for Canon	£9.99
NB-10L for Canon	£12.99
NB-11L for Canon	£12.99
BP-511 for Canon	£12.99
LP-E5 for Canon	£9.99
LP-E6 for Canon	£16.99
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LP-E10 for Canon	£12.99
LP-E12 for Canon	£12.99
NP45 for Fuji	£9.99
NP50 for Fuji	£9.99
NP95 for Fuji	£9.99
NPW126 for Fuji	£12.99
NP400 for Fuji	£12.99
EN-EL3E for Nikon	£14.99
EN-EL5 for Nikon	£9.99
EN-EL9 for Nikon	£12.99
EN-EL10 for Nikon	£9.99
EN-EL11 for Nikon	£9.99
EN-EL12 for Nikon	£9.99
EN-EL14 for Nikon	£19.99
EN-EL15 for Nikon	£24.99
EN-EL19 for Nikon	£12.99
EN-EL20 for Nikon	£12.99
EN-EL21 for Nikon	£12.99
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Li50B for Olympus	£9.99
BLM-1 for Olympus	£12.99
BLN-1 for Olympus	£24.99
BLS-1 for Olympus	£12.99
BLS-5 for Olympus	£15.99
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CGA-S007 for Panasonic	£9.99
DMW-BCG10 Panasonic	£19.99
DMW-BCM13 Panasonic	£19.99
DMW-BLB13 Panasonic	£27.99
DMW-BLC12 Panasonic	£23.99
DMW-BLD10 Panasonic	£23.99
DMW-BLG10 Panasonic	£22.99
DMW-BMB9 Panasonic	£22.99
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D-Li109 for Pentax	£12.99
SLB-1137D for Samsung	£9.99
SLB-1674 for Samsung	£12.99
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BX-1 for Sony	£14.99
BY-1 for Sony	£12.99
NP-FM500H for Sony	£19.99
NP-FH50 for Sony	£19.99
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Professional battery grips, made by Hahnel.

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70D for Canon	£84.99
650D/700D for Canon	£84.99
D600 for Nikon	£84.99
D800/D810 for Nikon	£84.99
D3300/D5300 for Nikon	£74.99
D7100 for Nikon	£84.99

Battery Chargers

Universal Chargers

Unipal ORIGINAL	£19.99
Unipal PLUS	£24.99
Unipal EXTRA	£29.99

AA & AAA Chargers

Hahnel TC Novo inc. 4xAA	£8.99
Energizer Pro inc. 4xAA	£14.99
Energizer 1 Hr inc. 4xAA	£22.99

Other Batteries

Pre-Charged Rechargables

AA GP Recyko 3+1 FREE	£5.24
AAA GP Recyko 3+1 FREE	£5.24
AA Energizer Extreme (4)	£8.99
AAA Energizer Extreme (4)	£6.99

Standard Rechargeables

AA GP 2600mAh (4)	£9.99
AA Lloytron 1300mAh (4)	£3.99
AA Lloytron 2700mAh (4)	£6.99
AAA Lloytron 1100mAh (4)	£3.99

Lithium Batteries

AA Energizer Ultimate (4)	£5.99
AAA Energizer Ultimate (4)	£5.99
CR123A Energizer (1)	£1.99
CR2 Energizer (1)	£1.99
2CR5 Energizer (1)	£3.99
CRP2 Energizer (1)	£3.99
CRV3 Energizer (1)	£5.99
A544 Energizer Alkaline (1)	£1.99
A23 Energizer Alkaline (1)	£1.99
LR44 Energizer Alkaline (2)	£1.99
CR2025, CR2032 etc	£1.99

Filters

One of the largest ranges of screw-in threaded filters in the UK, from Hoya, Kood and Marumi. We carry sizes from 24mm, up to 105mm, and offer Clear Protectors, UVs, Skylights, Circular Polarisers, ND4s, ND8s, ND16s, ND32s, ND64s, ND500s, ND1000s, Variable NDs, Starbursts, Close Up Sets and more! Below are just a few examples...

KOOD Slim Frame

UV Filters

37mm	£4.99
40.5mm	£4.99
46mm	£4.99
49mm	£4.99
52mm	£4.99
55mm	£5.99
58mm	£6.99
62mm	£7.99
67mm	£8.99
72mm	£9.99
77mm	£11.99
82mm	£14.99
86mm	£19.99

KOOD Slim Frame

Circular Polarisers

37mm	£12.99
40.5mm	£12.99
46mm	£12.99
49mm	£12.99
52mm	£14.99
55mm	£15.99
58mm	£17.99
62mm	£19.99
67mm	£22.99
72mm	£26.99
77mm	£29.99
82mm	£34.99
86mm	£39.99

KOOD

ND4 & ND8 Filters

52mm	£26.99
58mm	£34.99

Marumi DHG Slim Frame Multi-coated

Clear Protectors

37mm	£10.99
43mm	£10.99
46mm	£10.99
49mm	£10.99
52mm	£10.99
55mm	£11.99
58mm	£12.99
62mm	£14.99
67mm	£15.99
72mm	£17.99
77mm	£19.99
82mm	£22.99

Marumi DHG Slim Frame Multi-coated

UV Filters

52mm	£13.99
58mm	£15.99
62mm	£17.99
67mm	£19.99
72mm	£21.99
77mm	£24.99

Marumi DHG Slim Frame Multi-coated

Circular Polarisers

52mm	£31.99
58mm	£35.99
62mm	£39.99
67mm	£44.99
72mm	£49.99
77mm	£54.99
82mm	£69.99

Hoya HMC Slim Frame

UV Filters

37mm	£12.99
40.5mm	£12.99
46mm	£12.99
49mm	£11.99
52mm	£11.99
58mm	£14.99
62mm	£16.99
67mm	£18.99
72mm	£21.99
77mm	£25.99
82mm	£29.99

HOYA Pro-1D Slim Frame Multi-coated

Clear Protectors

52mm SPECIAL	£16.99
58mm	£28.99
62mm	£31.99
67mm	£35.99
72mm	£39.99
77mm SPECIAL	£29.99
82mm	£49.99

HOYA Pro-1D Slim Frame Multi-coated

Circular Polarisers

52mm	£52.99
58mm	£60.99
62mm	£67.99
67mm	£75.99
72mm	£90.99
77mm SPECIAL	£79.99
82mm	£120.99

Square Filters

We stock three widths of square filters: A-type (67mm wide), P-Type (84mm wide) and Z-Type (100mm wide). Made in the UK, Kood square filters are optically flat, with excellent colour density, neutrality and stability. They received a maximum 5 star rating from Digital Camera Magazine.

P-Type: 84mm wide Filters

Standard Holder	£5.99
Wide Angle Holder	£6.99
Filter Wallet for 8 filters	£9.99
Adapter Rings 49-82mm	£4.99
Circular Polariser	£27.99
ND2 Solid	£12.99
ND2 Soft Graduated	£13.99
ND2 Hard Graduated	£13.99
ND4 Solid	£12.99
ND4 Soft Graduated	£13.99
ND4 Hard Graduated	£13.99
ND8 Solid	£14.99
ND8 Soft Graduated	£15.99
ND8 Hard Graduated	£15.99
Light Blue Graduated	£12.99
Dark Blue Graduated	£12.99
Light Tobacco Graduated	£12.99
Dark Tobacco Graduated	£12.99
Light Sunset Graduated	£14.99
Dark Sunset Graduated	£14.99
Starbursts x4, x6, x8	£17.99
Red/Green/Yellow each	£14.99
Six-piece ND Filter Kit	£59.99

A popular kit containing an ND2, ND2 Soft Grad, ND4, ND4 Soft Grad, Filter Holder, plus Adapter Ring of your choice (49-82mm).

Z-Type: 100mm wide Filters

Pro Holder	£24.99
Adapter Rings 52-95mm	£8.99
ND2 Solid	£16.99
ND2 Soft Graduated	£17.99
ND2 Hard Graduated	£17.99
ND4 Solid	£16.99
ND4 Soft Graduated	£17.99
ND4 Hard Graduated	£17.99
ND8 Solid	£18.99
ND8 Soft Graduated	£19.99
ND8 Hard Graduated	£19.99
Light Blue Graduated	£17.99
Dark Blue Graduated	£17.99
Light Tobacco Graduated	£17.99
Dark Tobacco Graduated	£17.99
Light Sunset Graduated	£18.99
Dark Sunset Graduated	£18.99

A-Type: 67mm wide Filters

Standard Holder	£4.99
Adapter Rings 37-62mm	£8.99
ND2 Solid	£10.99
ND2 Graduated	£11.99
ND4 Solid	£10.99
ND4 Graduated	£11.99
ND8 Solid	£11.99
ND8 Graduated	£12.99

Lens Accessories

Bayonet-Fit Lens Hoods

ES-62 Canon 50/1.8	£9.99
ES-71II Canon 50/1.4	£9.99
ET-60 Canon 75-300/4-5.6	£9.99
ET-65B Canon 70-300/4-5.6	£9.99
ET-67 Canon 100/2.8 Macro	£9.99
ET-67B Canon 60/2.8	£9.99
EW-60C Canon 18-55 IS	£7.99
EW-63C Canon 18-55 IS STM	£9.99
EW-73B Canon 18-55 IS	£9.99
EW-78BII Canon 28-135 IS	£9.99
EW-78D Canon 18-200 IS	£9.99
EW-78E Canon 15-85 IS	£12.99
EW-83E Canon 17-40/4.0	£12.99
HB-32 Nikon 18-105 VR	£7.99
HB-45 Nikon 18-55 VR	£7.99

Stepping Rings

25mm to 105mm

160 different sizes £4.99-5.99

Reversing Rings

52mm to 77mm

Canon, Nikon, Sony, Olympus and Pentax £9.99-19.99

Coupling Rings

49mm-77mm £9.99-£11.99

Screw-Fit Lens Hoods

37mm Rubber Hood	£3.99
40.5mm Rubber Hood	£3.99
43mm Metal Hood	£5.99
46mm Rubber Hood	£3.99
46mm Metal Hood	£5.99
49mm Rubber Hood	£3.99
49mm Shaped Petal Hood	£6.99
52mm Rubber Hood	£3.99
52mm Shaped Petal Hood	£6.99
55mm Rubber Hood	£3.99
55mm Shaped Petal Hood	£6.99
58mm Rubber Hood	£3.99
58mm Shaped Petal Hood	£6.99
62mm Rubber Hood	£4.99
62mm Shaped Petal Hood	£7.99
67mm Rubber Hood	£4.99
67mm Shaped Petal Hood	£7.99
72mm Rubber Hood	£5.99
72mm Shaped Petal Hood	£9.99
77mm Rubber Hood	£5.99
77mm Shaped Petal Hood	£9.99

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ISSUE 107 ON SALE 10 NOVEMBER

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Chris George's CANONDRUM

How much do you really know about Canon photography? Test yourself to the max every issue with our tricky trivia quiz!

01 Your EOS's sensor is made up of millions of photosites, each of which is either sensitive to red, green or blue. Which of these statements is true:

- A There are more blue photosites than red or green ones
- B There are more green photosites than red or blue ones
- C There are more red photosites than green or blue ones
- D There are equal numbers of red, green, and blue photosites

02 Which designer created a number of innovative camera prototypes for Canon, and was the man behind the shape of the legendary Canon T90?

- A Luigi Colani
- B Camillo Olivetti
- C James Dyson
- D Enzo Ferrari

03 Who is this famous American TV presenter, writer and businesswoman, seen here with her Canon G10?

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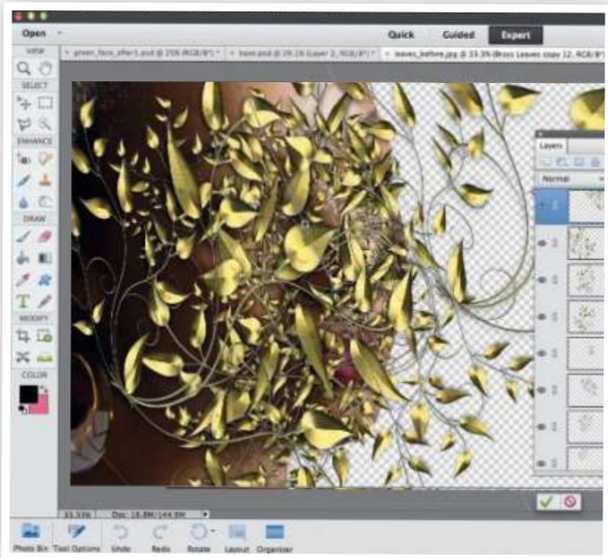

04 Which of these tools will you not find in the Adobe Photoshop Elements Tools palette?

- A Dodge tool
- B Pen tool
- C Eyedropper tool
- D Gradient tool

05 The Canon EOS 1100D (aka Rebel T3) has been available in a variety of colours. Which was not a body option?

- A Red
- B Blue
- C Brown
- D Gold

06 Which of these would be the best shutter speed to use for a zoom burst?

- A 1/4000 sec
- B 1/250 sec
- C 1/15 sec
- D 15 secs

07 Which superhero has a daytime job as a photographer?

- A Superman
- B Spider-Man
- C Batman
- D Green Lantern

08 Depth of field tends to increase if you use…

- A a tripod
- B a wide-angle lens
- C a prime lens
- D a zoom lens

09 Which of these is well-used compositional guide for photographers?

- A The fourth protocol
- B The 39 steps
- C The rule of thirds
- D A game of two halves

10 What is the aspect ratio of a Canon EOS DSLR?

- A 3:2
- B 4:3
- C 35mm
- D 1.6x

ANSWERS

1.B, 2.A, 3.MARTHA STEWART, 4.B, 5.D, 6.C, 7.B, 8.B, 9.C, 10.A

HOW DID YOU DO?

10 points	You're a photography mastermind!
8–9 points	Fantastic, you're a brainiac
6-7 points	Really good score
4-5 points	Respectable, but no cigar
2-3 points	We'll keep your score secret
0-1 points	Epic fail

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